NEWS-RECORD

A McGRAW-HILL PUBLICATION

JULY 14, 1949

[illegible]

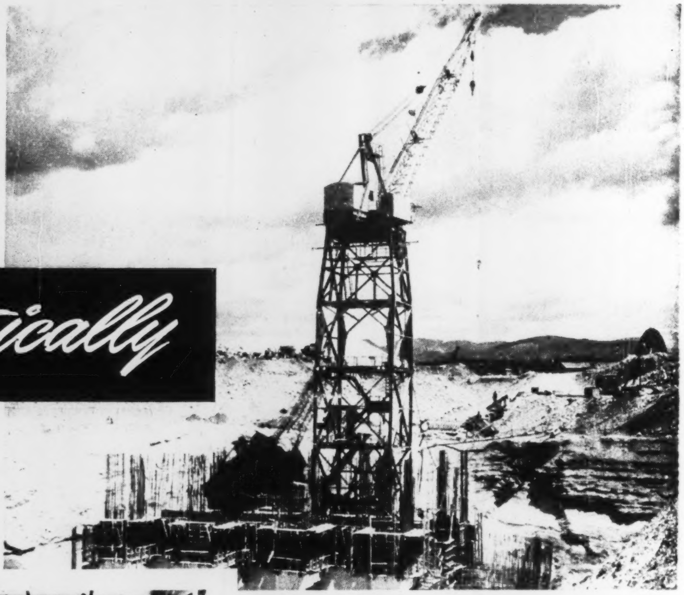
RECORD MADE ON DAVIS DAM FILL

• • •

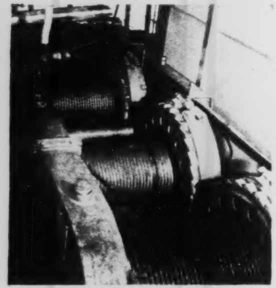
MOBILE LAB AIDS STREAM STUDIES

swing and hoist

... Electrically



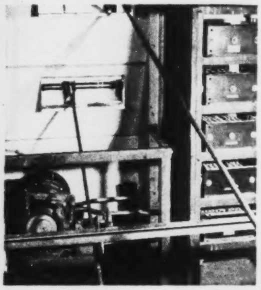
G-E equipped Colby crane at work on site of Granby Pumping Station



Hoist assembly consists of cable drums and General Electric 100-hp motor

Operator at controls of Colby crane, spotting loaded concrete buckets

Inspection and maintenance of the G-E control equipment is easy



Swing motor and resistor assembly are compact, yet readily accessible

Colby Crane Helps Granby Constructors Shorten Schedule

Here's the "sky hook" that's accelerating concrete placing operations at Granby Pumping Station, heart of the Bureau of Reclamation's Colorado Big Thomson project. The crane is built by Colby Steel and Engineering Company of Seattle and embodies the latest and most efficient electric drive and safety devices.

Machinery manufacturers and contractors alike are realizing the time and money economies of *electrically* driven construction equipment. And by specifying General Electric they get the additional advantages of engineering assistance in application, installation and service wherever the job may be.

Ask him Today!

Whether you use or build construction equipment, your G-E representative can show you how to do a better job at lower cost by complete electrification. He will be glad to call on you at your convenience.

Electrified Construction
BETTER PRODUCT
LOWER COST

GENERAL ELECTRIC

664-2

Designer: Wilbur Watson & Associates, Cleveland; *General Contractors:* Bates & Rogers Construction Corp., Chicago
Bridge constructed under supervision of Ohio State Highway Department and U. S. Public Roads Administration

New Highway Bridge in Ohio

Aptly named the High Level Bridge, this recently completed steel structure, connecting Akron and Cuyahoga Falls, Ohio, towers 185 ft above the narrow Cuyahoga River. It is a deck-type cantilever bridge, 900 ft long, with an open-grid four-lane floor. It has a center span of 480 ft, and two anchor arms of 210 ft each.

The superstructure for this highway giant, weighing nearly 3000 tons, was fabricated and erected by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation
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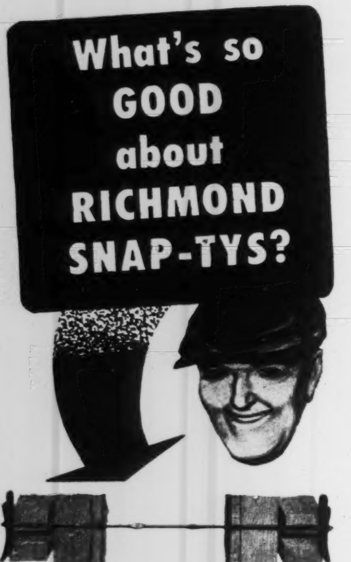
FABRICATED STEEL CONSTRUCTION

BETHLEHEM
STEEL



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ENGINEERING NEWS-RECORD

VOLUME 143 JULY 14, 1949 NO. 2

WALDO G. BOWMAN
Editor

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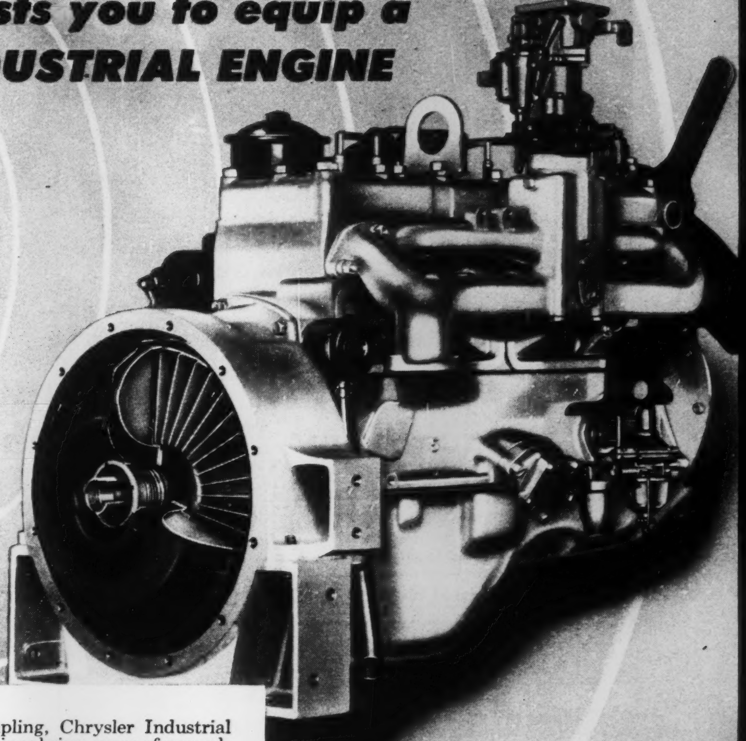
gýrol Fluid Drive!



Does operation of your equipment require frequent clutching and de-clutching?

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Do shock loads sometimes stall your engine or cause failure of drive train parts? Would gradual oil-smooth acceleration improve your operation?

If your answer is "yes" to any of these questions, better investigate Chrysler Industrial Engines now! With gýrol Fluid Coupling, Chrysler Industrial Engines bring *scores* of new advantages to the operation of power equipment.

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Its cost is amazingly low! *Actually only a few dollars more than the cost of the conventional flywheel which it replaces!* For more information, see your nearest Chrysler Industrial Engine Dealer, write us, or *mail the coupon today!*

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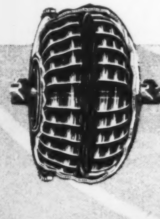

As the driver turns inside the sealed steel drum, the confined oil produces a powerful swirling out-thrust. Instantly the Runner receives the impulsion and transmits smooth power to the load.

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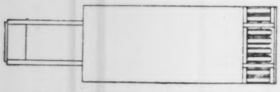
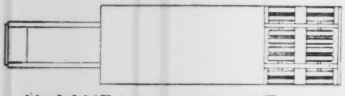
Select the DORSEY Low Bed Machinery Trailer with Confidence!



Model M 15-20-25 Tons



Model MT 35-40-50-60-75 Tons

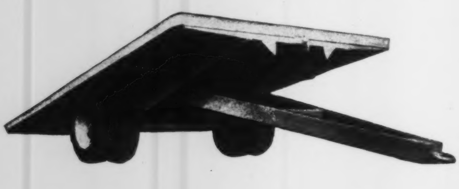
Model MK 10-15 Tons

Contractors and Engineers throughout the nation are selecting the Dorsey Low Bed Heavy Duty Semi or Full Trailers to move heavy equipment . . . to "Make the Heavy Jobs Light."

Dorsey Low Beds are available in four models — M — MK — MTS and MT — with capacities from 10 T to 75 T — a model for every need and state law load limit.

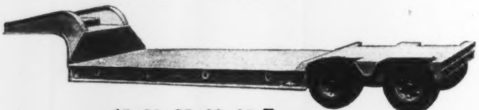
"Engineered for minimum weight . . . safe road performance . . . new low platform height . . . new hydraulic, air or vacuum brakes, all are features of advanced design that insure *low, dependable, operating economy.*"

DORSEY TILT-TO-LOAD TRAILERS



A-7 7,500 lb. A-15 15,000 lb. A-20 20,000 lb.

Model MTS



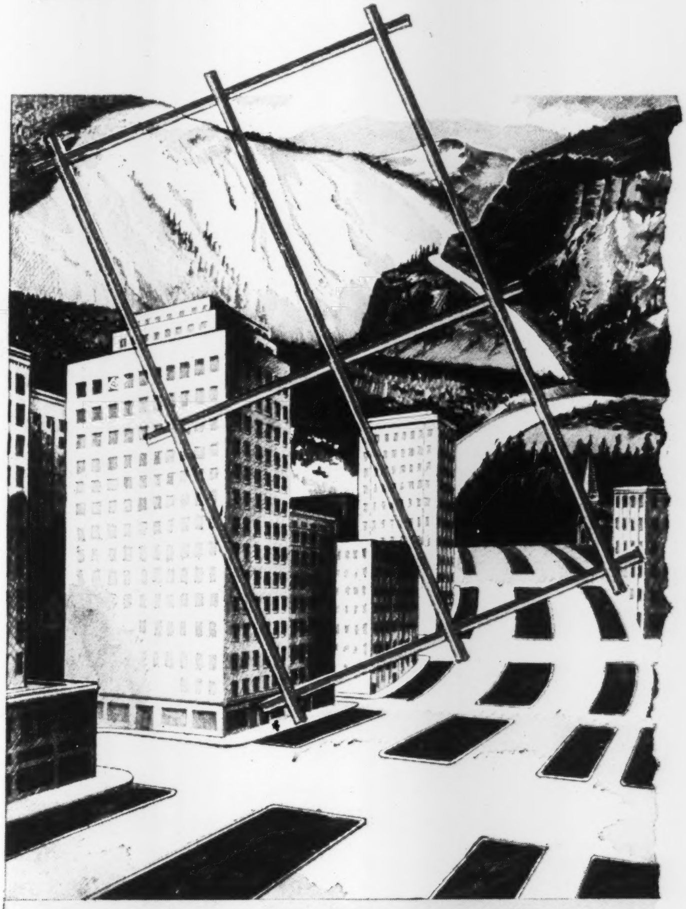
15-20-25-30-35 Tons

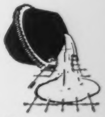
DORSEY
TRAILERS
ELBA ALABAMA, U. S. A.

MODERN DESIGNED TRANSPORTATION

To CONTROL CRACKING in concrete pavements

buy American Welded Wire Fabric





You can prevent undue damage from cracks, if they occur in concrete pavements, by reinforcing paving slabs with American Welded Wire Fabric.

Its many small members of cold drawn, high yield-point steel, closely and evenly spaced, fortify all parts of the slab, tend to prevent excessive cracking. They also hold crack edges together, distribute wheel loads to both sides of the crack, prevent progressive damage to the slab and to the subgrade. (See sketches)

No other type of construction has matched the records established by concrete slabs reinforced with American Welded Wire Fabric. Their structural superiority has been proved in the many thousands of miles of concrete highways in which they have given satisfactory service, year after year.

There is a standard style of U·S·S American Welded Wire Fabric to meet every paving requirement. Write to the American Steel & Wire Company, Rockefeller Building, Cleveland 13, Ohio, for literature on American Welded Wire Fabric.

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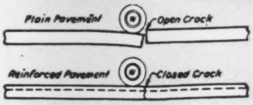
As the wheel load approaches an open crack in plain pavement, shown above, one slab end carries the entire load. As the wheel load approaches the closed crack in pavement reinforced with American Welded Wire Fabric, shown below, both slab ends, instead of one, carry the load, preventing progressive damage to the slab and to the subgrade.



Every concrete paving job needs

USS AMERICAN WELDED WIRE FABRIC *reinforcement*

UNITED STATES STEEL

Throw a wet blanket

HIGH COSTS!

The Sludge Blanket in the Permutit Precipitator acts as a filter...SAVES YOUR EXPENSIVE CHEMICALS!

The positively agitated uniform sludge filter in the Permutit® Precipitator will save you up to 50% in space and 75% in time of treatment too!

The Permutit Precipitator offers you the newest and most efficient means of removing impurities from your water. It does this by precipitation, adsorption, settling, and upward filtration. Write for full details to the Permutit Company, Dept. ENR-6, 330 West 42nd Street, New York 18, N. Y., or to the Permutit Company of Canada, Ltd., Montreal.

SEE THESE BENEFITS:

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- Lowest Chemical Requirements
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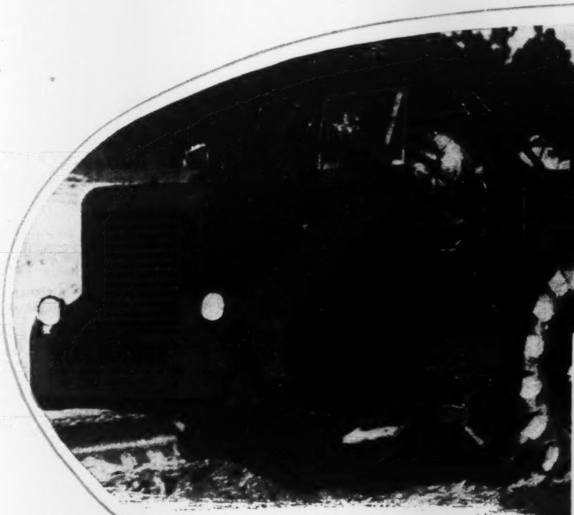
- Low Turbidity
- Lengthened Filter Runs

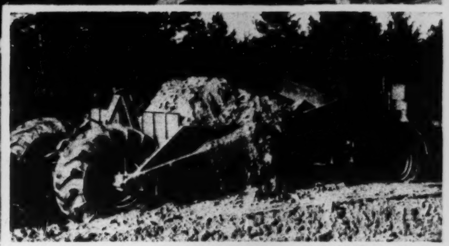
FOR 35 YEARS
WATER CONDITIONING HEADQUARTERS

Permutit

ONE COBRA LEADS TO ANOTHER!



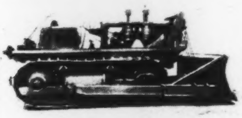
Recognized throughout the South as dirt-wise contractors, the Cherokee and Robert Lee construction companies know self-propelled earth moving equipment—know that profits depend on their having the best. Above, 200 hp Terra Cobra loads on Highway No. 1 near Aiken, S. C. "Machines perform very favorably" states Robert E. Lee, one of principal contractors.



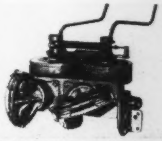
Heaping loads like these helped contractors move 1,100,000 cu. yds. in a record time of 11 weeks. Terra Cobras carry 14 cu. yds. struck, 17.5 heaped. Cherokee Construction Company is an experienced Terra Cobra user. Their men can tell you how the time-tested and job-proved equipment, pioneered and backed by Wooldridge reliability, can pay off in extra yardage—and profits.

SCRAPERS: Boiling Bowl and Terra Clipper Scrapers from 7.5 to 27.5 cu. yd. heaped capacities.

RIPPERS: Three models: for extra heavy, standard or light duty.



BULLDOZERS and Trailbuilders for all standard makes of tractors.



POWER CONTROL UNITS. Two-drum winches for use with all standard tractors.

Three Terra Cobras paid off . . .
. . . so contractor bought five more!

"We originally purchased three Terra Cobras for our Clark Hill Dam job . . . and their performance was so economical that we have since bought five additional units; the Terra Cobra is rugged equipment which gets the job done," stated Mr. B. A. Jordan, Jr., President and General Manager of Cherokee, Inc.

This firm, together with Lee, Inc., recently used seven Wooldridge Terra Cobras to move a substantial portion of 1,100,000 cu. yds. in just eleven weeks during grading operations for the new four-lane super highway section of U. S. Highway No. 1, near Aiken, S. C. Production estimates showed average loads of 14 cu. yds., trip after trip. With machines operating on a 55-hour week schedule, Job Superintendent Alonzo Bailey stated, "Cobras will move more dirt with minimum down time."

Take a tip from the records of successful contractors like these. See your Wooldridge distributor or write today for complete details before bidding on your next job. Your order now will assure prompt delivery.

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PROVED AND APPROVED FOR EVERY TYPE OF EARTH-MOVING JOB

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and domestic patents
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IF your business involves attaching steel or wood to concrete, masonry or steel, the DRIVE-IT system of fastening can save you plenty. Reports of 60% to 75% savings in time and 50% to 60% savings in cold cash are common.

Here's the way DRIVE-IT works: a small powder charge "drives" a hardened steel studpin into steel, concrete and other tough materials. It's similar to driving a nail with a hammer except that the powder charge provides the "muscle." Time-wasting drilling is eliminated and the studpin will withstand up to 5,000 lbs. direct pull, depending upon the density of the material.

A choice of over 40 different studpins—threaded or unthreaded, plus varied powered charges are available.

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Simple as A-B-C

A Insert studpin and power load

B Screw on barrel

C Fire!

AVERAGE TIME
45 seconds

DON'T DRILL IT... DRIVE-IT POWDER-POWER TOOL

DRIVE-IT
THE MODERN MIRACLE TOOL

NEWS BRIEFS

Big Can Factory—Work has been started on the construction of the American Can Co.'s multi-million dollar can manufacturing plant at Milwaukee, Wis. To be completed next year, it will contain half a million sq. ft. of floor space, employ 1,000 persons, and have a capacity of 2,000,000 cans a day. Turner Const. Co. is builder and H. D. Bowman, architect.

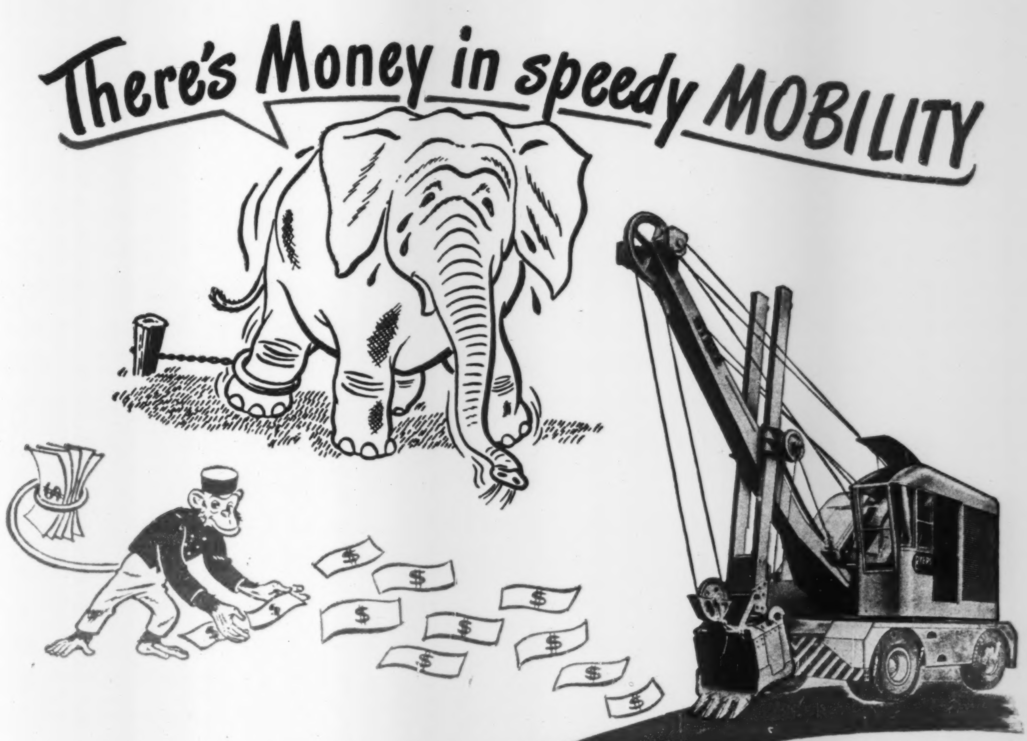
Power Expansion—The Imperial Irrigation District of El Centro, Calif., has been authorized by voters in the district to sell a $12,500,000 revenue bond issue to finance expansion of the publicly-owned power system. A hydroelectric plant is planned at Pilot Knob on the All-American Canal, near the point where water is now diverted into Mexico. This construction is contingent upon the federal government's release of the site. Failing that approval, the district would build another unit at its recently expanded steam generating plant at El Centro and small hydroelectric plant additions at the district's plants at siphon Drops 3 and 4.

A $7,500,000 Laboratory—Cornerstone has been laid for the University of Chicago's $7,000,000 laboratory, the second unit of the research center for Nuclear Studies, the Institute for lurgical investigations. The Institute for Nuclear studies, the Institute for the study of Metals, and the Institute of Radiobiology and Biophysics, together with the Atomic Energy Commission's Argonne National Laboratory, of which the university is the prime contractor, make Chicago one of the greatest atomic centers in the world.

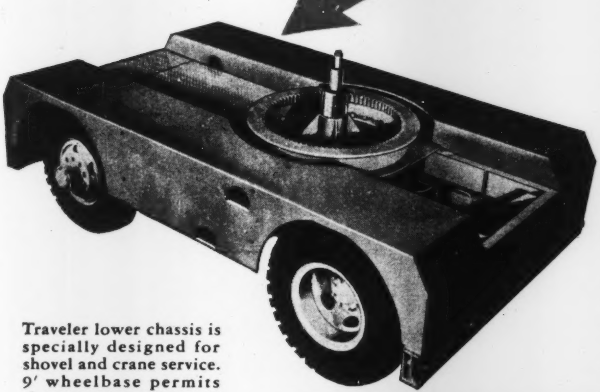
New Dam Contract—The Bureau of Reclamation has awarded a $4,718,725 contract to J. A. Terteling & Sons of Boise, Idaho, to build the North Dam and complete the feeder canal for the Columbia Basin project.

More Pipe Lines—Standard Oil Co. of California have announced that construction will start shortly on a $6,500,000 pipe line linking the company's Salt Lake City refinery with Pasco, Wash. The line would be 560 miles long. Its initial leg, from Salt Lake City to Boise, would be 8-in. dia. The new line would carry gasoline, heating oil and diesel fuel products from the Salt Lake Refining Co.'s new North Salt Lake plant to Utah, Idaho and Oregon and Washington.

(Continued on page 10)


There's Money in speedy MOBILITY

...and here's the *Wide Range Mobility Feature* that is making money for *BYERS TRAVELER OWNERS* today!



Traveler lower chassis is specially designed for shovel and crane service. 9′ wheelbase permits sharp turning. 8′ overall width for highway travel. Speeds from 15 m.p.h. to "creeper". Safe wheel and axle loads. 4 sliding outriggers.

Byers Traveler is unusually profitable to own and use today because it combines specially engineered utility features that make it a *fast*, powerful and highly *mobile* excavator and crane.

Its short, compact undercarriage permits 360° shovel operation . . . digging over front, sides and back. This chassis employs 4 transmission travel speeds forward, one reverse. Power steer and air brakes provide easy positive control for the single operator. Quick lever shift to 2 or 4 wheel drive convert the machine from a high speed traveler on the highway to a six-wheel traction outfit for off the highway maneuvering and working.

Here's the outstanding excavator in the wide range mobility class today. Proved efficient on countless jobs everywhere.

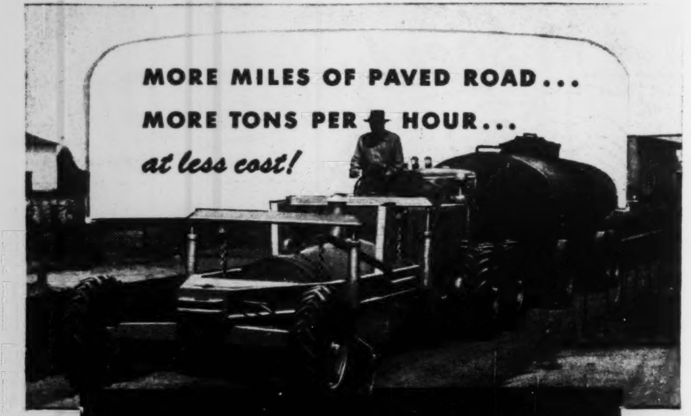
Write for complete catalog today or . . . ask your local Byers sales representative.

THE BYERS MACHINE CO. • RAVENNA, OHIO
Distributors throughout the World

Self-propelled, one man operated

BYERS TRAVELER

1/2 and 5/8 yd. Shovel, Crane, Clamshell, Dragline, Backhoe



WOOD ROADMIXER

The Wood Roadmixer is your best answer to modern low cost mix-in-place construction. Here's why:

LESS MANPOWER—this *one man operated* traveling mixing plant takes low cost native materials and thoroughly mixes with emulsion, road oil or soil cement binders in one pass—windrowed and ready for spreading and compaction.

HIGH PRODUCTION, LOW COST—up to 350 tons mixed per hour at less than 7 cents a ton is not uncommon.

FULL JOB CONTROL—from start to finish. You control the rate of travel, the pressure of binder, the uniform pickup of material. With measured windrow and supervision of aggregate you're assured a surface of uniform quality every time!

SELF PROPELLED—to and from the job speeds of 15 MPH and working speeds up to 40 ft. per minute!

MORE THOROUGH MIXING—pugmill mixing drum provides 200 mixing passes in 45 seconds! Compare this to the 1 to 4 passes provided by other mixers.

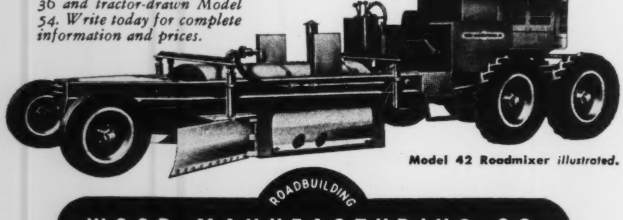
MANEUVERABLE as a motor patrol—uses pneumatic tires. Assures adequate traction in low bearing soils.

PLENTY OF ROADBUILDING APPLICATIONS—surfaces secondary roads, airfields, road shoulders, parking areas and detours. Subsurfaces major roads and airfields.

ACCEPTED AND RECOMMENDED by a majority of state highway departments, by the Civil Aeronautics Authority, U. S. Bureau of Public Roads, and the U. S. Army and Navy.

3 MODELS AVAILABLE

Self-propelled Models 42 and 36 and tractor-drawn Model 54. Write today for complete information and prices.



Model 42 Roadmixer *illustrated.*

ROADBUILDING
WOOD MANUFACTURING CO.
EQUIPMENT

BOX 620 . 6900 TUJUNGA AVENUE . NORTH HOLLYWOOD, CALIF.

The Ohio Fuel Gas Co., Columbus, a subsidiary of the Columbia Gas System, Inc., will soon start building 85 miles of natural gas pipeline in Central Ohio to replace 84 miles of line which the company will retire. Estimated cost of the project, after salvage of the facilities to be retired, is $3,239,720. The Federal Power Commission has authorized the work.

Canadian Hydro Plans—British Columbia Electric Railway Co. is doing preliminary planning for a $7,000,000 hydro-electric development at Jones Lake, in the Fraser Valley area. The company is looking for peaking capacity for its Bridge River plant and other lower Mainland facilities.

Anti-Pollution Progress—Under its "Clean streams" program the Sanitary Water Board of Pennsylvania has issued 559 orders to municipalities, industries and institutions requiring the abatement of pollution of streams or the preparation of plans for sewage treatment works. Of this total 456 have engaged engineers to prepare plans and 169 have submitted plans to the Bureau of Engineering for approval. In Wisconsin an end to pollution of the lower Fox River was ordered June 21 by the state committee on water pollution. It instructed six municipalities and 13 industrial firms to improve their water treatment facilities and to do it within two years.

Florida Flood Control—Army Engineers anticipate that initial work on a $208-million flood control project in central and south Florida will begin on schedule next month. Initial phase of the project will cost an estimated $70,000,000. An August start is dependent upon enactment by Congress of appropriation legislation. First work will center in Palm Beach and Broward counties.

$100 Million Canal—Directors of Kentucky's Chamber of Commerce have endorsed a proposal for canalizing the Big Sandy River, at an estimated cost of $100 million. The proposal is expected to make Kentucky coal competitive with West Virginia's bituminous output.

White House Renovator — Maj. Gen. Glen E. Edgerton (Ret.) has been made executive director of the Commission on Renovation of the White House (ENR, June 23, p. 38). The six-man commission must first decide whether to restore or replace the executive mansion; then it must oversee the job. Gen. Edgerton will head a technical staff of engineers and architects.

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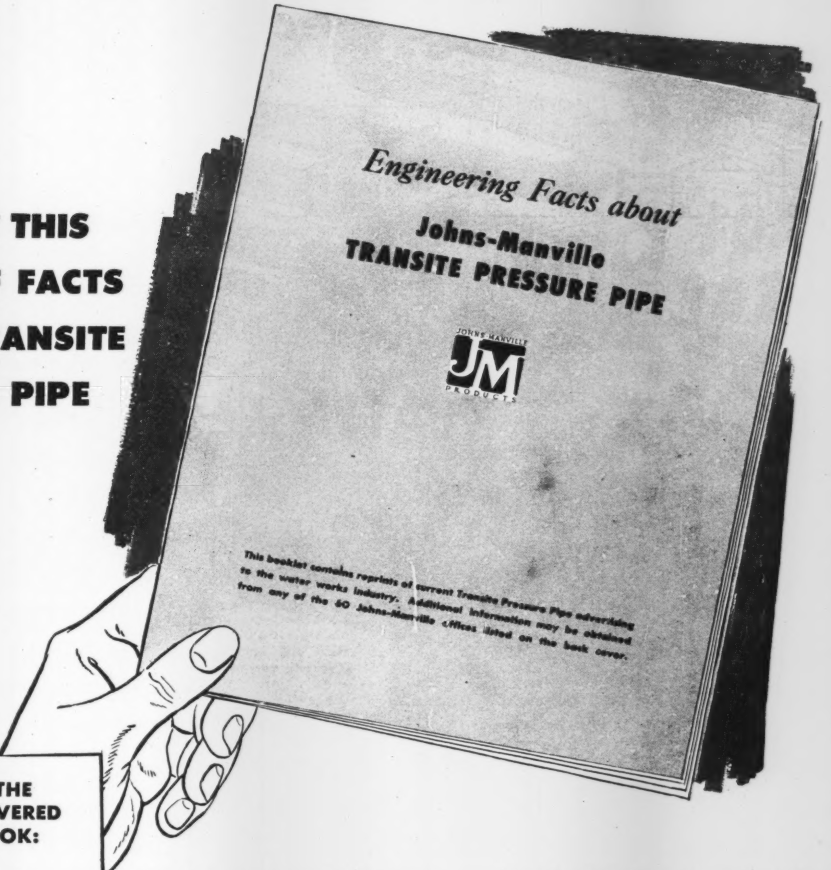

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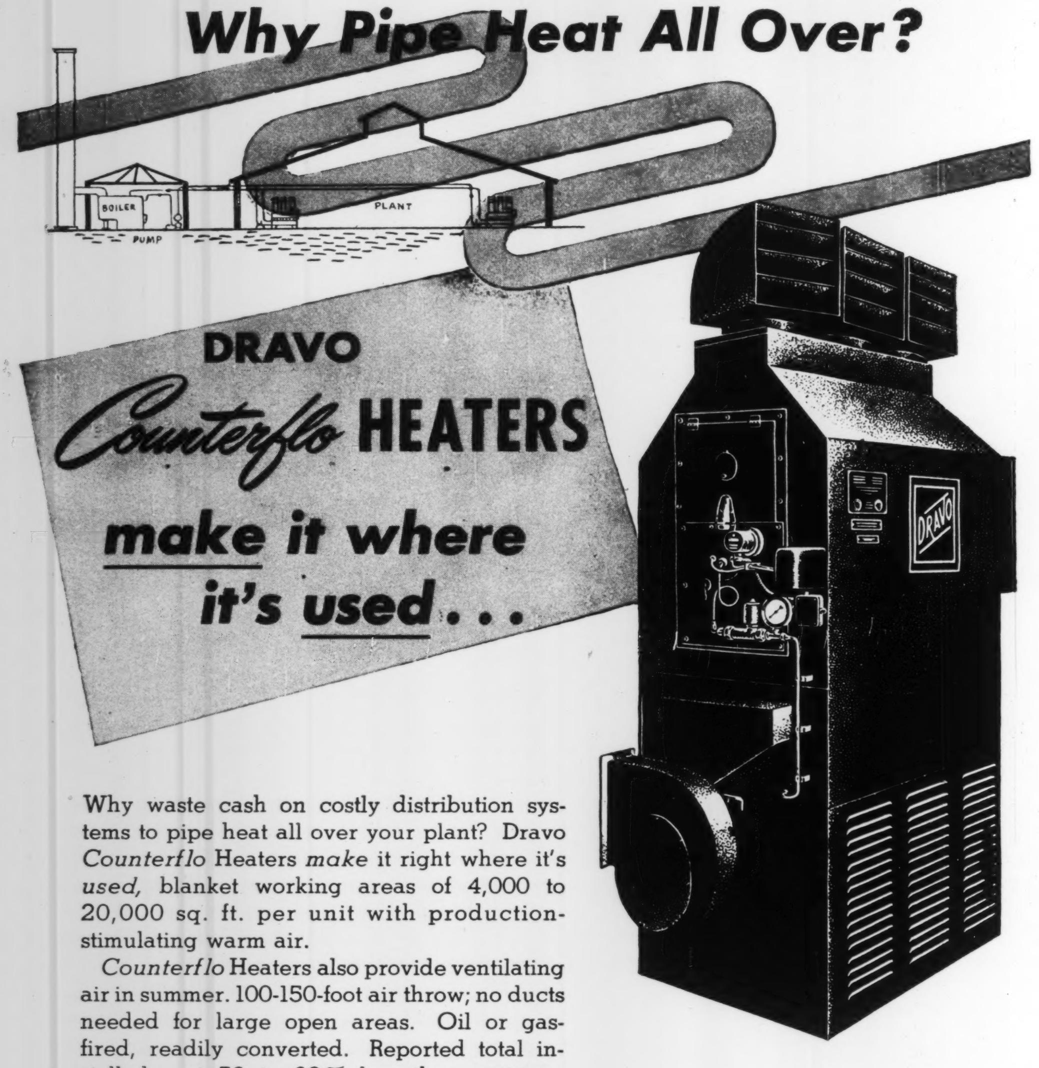

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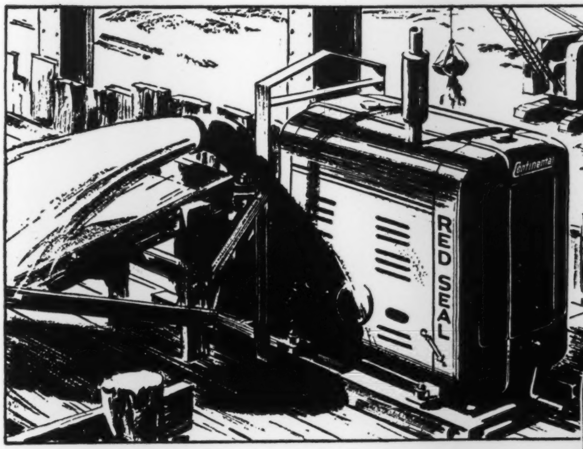

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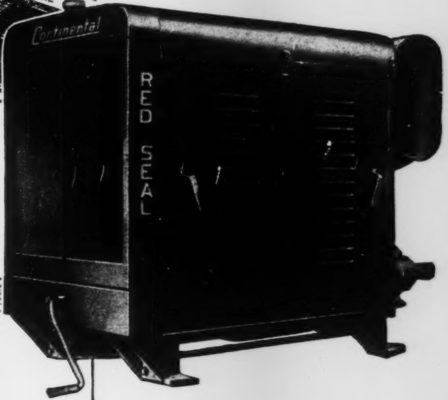

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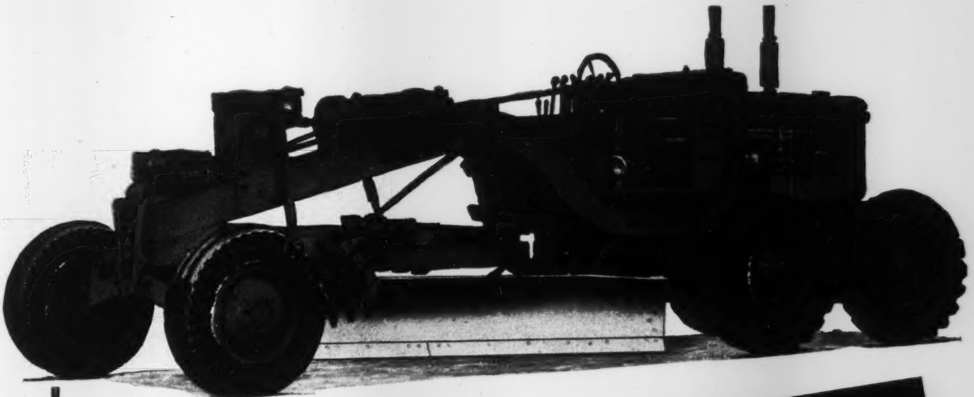

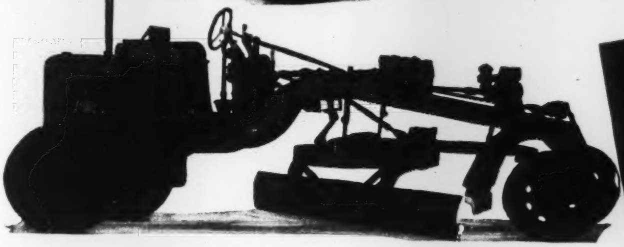

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THE CONSTRUCTION WEEK

NEAT TRICK—There hasn't been any public comment as yet, but Cleveland bricklayers managed a fast end run around other building tradesmen last week that will result in breaking a general wage agreement. Building unions and contractors recently reached and signed an agreement calling for general 15-cent-an-hour wage increases. The bricklayers refused to accept the agreement, took their complaint to the Rev. E. A. McCue, of John Carroll University, who acted as impartial arbitrator. He promptly awarded the masons a 20-cent increase. Observers are sure the contractors will have to grant the added 5-cent-an-hour rate to other trades, and figure the 20-cent total jump will raise building costs in the area by about seven percent.

'QUODDY AGAIN—Like Finnegan, Passamaquoddy is on again. Congress has voted $30,000 for the U. S. share in a joint study with Canada of the long-discussed project to harness tidal flow in the Bay of Fundy for electric power. The approval followed President Truman's OK of the study three months ago (ENR March 21, p. 19). Funds go to the International Joint Commission. It won't recommend on feasibility, but will only decide whether to investigate thoroughly.

CONVEYOR STILL PROSPECT—Despite a turndown by the Ohio legislature, plans for that 140-mi. Ohio River-Lake Erie conveyor belt (ENR Feb. 10, p. 5) aren't dead. H. B. Stewart—president of the Akron, Canton and Youngstown, and president of the River-Lake line—said last week his engineers would continue preliminary work on the conveyor, with the intention of re-introducing their request for right-of-way before the 1950 legislature. Among proposals is one to put the ore-and-coal carrying line underground.

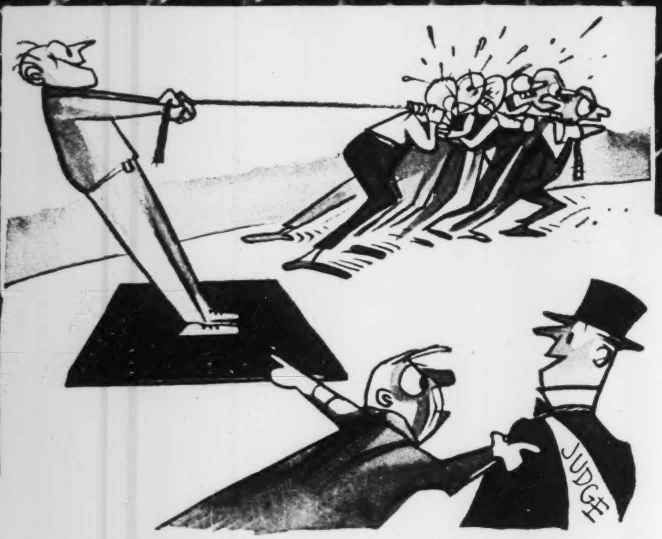
INFLATION OVER—President Truman is expected to abandon his insistence on inflation controls with his forthcoming mid-year economic report. He's not flagging a depression—the President is perforce an optimist—but he's expected to turn government toward offsetting the slide in business. There won't be any more table-pounding for more taxes, nor tall. of inflation controls.

DEFLATION HEDGING—Eyeing the trend from upswing to downswing in business, Congressmen are beginning to come up with possible hedges against an appreciable business drop—if needed. In addition to remedies already talked up by Republicans (ENR June 30, p. 5), Democrats have a couple up their sleeves. Among these is one proposal by Senator Murray, that would provide: nearly a half-billion dollars for planning state and local public works; non-interest-bearing loans up to $1,000 per family to transport unemployed to new jobs; easy government credit for business expansion in basic industries; a 60-month amortization of government-approved investment in new equipment. Insiders give the bill no chance for approval this year—but think if things get worse something like it might come up for action in 1950.

WHO'S TO BUILD POWER LINES?—Electric utilities are again attempting to get the courts to declare that the government can't—or shouldn't—build power lines to compete for utility customers. The power company argument turns on the "due process" clause of the constitution. The Bureau of Reclamation provided the peg for the action when it recently sued 1,000 Colorado residents—including Public Service Co. of Colorado—to divest them of their water rights. Reclamation claims this is necessary to develop the Colorado-Big Thompson project as directed by Congress. Public Service counters with the claim that Congress directed construction of only 192 mi. of power lines to carry government power produced by the project—and the company says more than this mileage has been built. Says Public Service: This is competition for customers, violating the "due process" clause. The power business hopes, at least, that this case will open up some of the constitutional questions that it has been unable to take to court.

FRENCH BUILDING—A total of 47 billion francs (about $183 million) in French counterpart funds will be released this month, as a result of ECA operations. Of this total, about $45,000,000 will be used for electric power; $30,000,000 for railroads; $10,000,000 for general reconstruction.

STONE GUARANTEE—Joseph Pacifico, Philadelphia businessman, has found he can cut and process Italian building stone in Italy cheaper than he can buy stone in the U. S.—even including shipping charges to Philadelphia. So, in the first transaction of its nature, ECA has approved a $20,000 industrial guarantee to Pacifico, so he can build a plant near Naples to process the stone. It's the first industrial guarantee outside the U. K.



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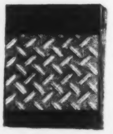

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CONSTRUCTION TRENDS

Planners Look to Construction

Construction has a key role in the anti-depression plans which are again being born in Washington.

Last month a major bill embodying a program against deflation—rather than inflation—was introduced by eight senators headed by Senator James E. Murray. It included not only their ideas, but those of key economists in the Administration.

Designed to provide "economic stability and steady growth and expansion" the bill would affect construction probably more than any other industry. Whether or not the bill is considered seriously in this session, it contains some ideas that are certain to come up again and again in Congress.

Some of those ideas that affect construction particularly are:

1. The bill would set up a $15 billion reserve of planned state and local public works projects. With the help of federal loans and advances, states and municipalities could investigate, plan, work out blueprints and specifications, and even acquire sites. Basic idea of this section is to get states and cities working on ten-year programs that could be speeded up at any time to offset a business decline in their areas.

Federal agencies, in turn, would be expected to set up their own long-range programs, keeping up-to-date plans, designs, and estimates for specific programs for at least a ten-year period.

In all, the goal of the bill is to put between $15 and $25 billion worth of public projects "on the shelf"—ready for construction as soon as business begins to slope off. That would eliminate the gap of two years, or more, that occurred in the 1930's. Then, when Congress tried to get a major program underway to provide employment, workers and suppliers had to sit on the sidelines for a couple of years while plans were drawn and land acquired.

2. Construction would be used to bolster business long before a depression became general. The bill pays special attention to areas of serious unemployment. Instead of waiting for unemployment in one city or industrial section to spread to others, the Murray bill directs the President to take action. He may step up government contracts in the area, for example. But his chief weapon would be to speed up public works in that area by stepping up federal programs or making loans for state and local projects.

So far, these ideas are more or less standard. But the bill goes on to suggest sweeping new powers for the President. For example, it would encourage expansion in such industries as synthetic liquid fuels, steel, freight cars, or fertilizers. Taxpayers would be allowed to amortize construction and equipment costs for expansion within five years—so cutting their taxes.

If that didn't bring the expansion the government thinks is necessary, the President may encourage the constructon, on his own terms, of plants or equipment. Construction and operation would be by private firms—but the President could give them any terms for sale, lease, or construction that he thought necessary to get action.

Construction, however, cannot stabilize the whole economy.

How good an anti-depression weapon construction is can be seen from today's volume figures. New construction as a whole is running at the rate of something more than $18 billion a year.

In comparison, public works, federal, state and local, are expected to run about $5 billion this year—a postwar record.

But if the volume of private construction falls off one-half again—as it did between 1929 and 1931—public works would have to be more than doubled to take up the slack. It would take a prodigious effort in expanding public works just to maintain employment among construction workers. Moreover, today the whole shelf of planned public works that might be started fairly soon is estimated at only about $5 billion—and that couldn't be spent in one year since some projects would need several years to complete. With that reserve, it might take several years to double the volume of public works.

Construction also has problems of its own—which the bill doesn't answer.

In the great depression, for example, state and local public works fell off steadily while Congress stepped up federal programs. The federal program grew from $451 million in 1931 to $828 million in 1935. But state and local spending fell from $2,141 million to $726 million—offsetting the federal program.

The Murray proposals are already being debated hotly.

The chances are that Congress in this session won't get around to voting on the sweeping powers the bill would give the President. But it is the most revealing light yet thrown on the planners' ideas of what to do if business slides seriously again. And it shows construction will certainly play a key part.

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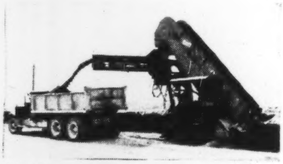

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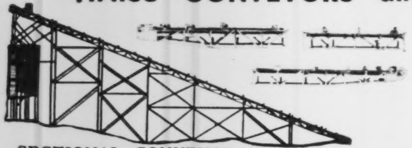

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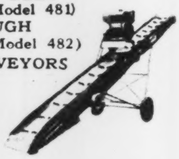

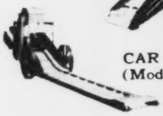

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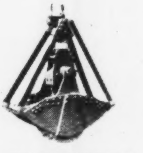

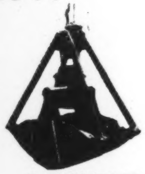

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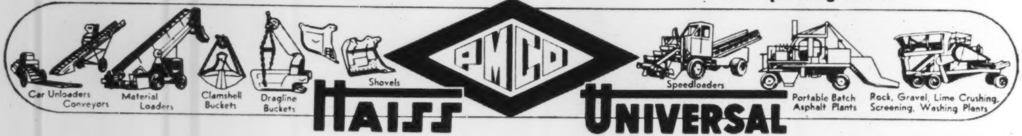
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EDITORIALS

Authority to Decide

In striking down the taxpayer suit to compel reversal of the contract award for the Arlington County incinerator project (p. 44), the Virginia Supreme Court of Appeals effectively strengthened the foundation on which public works officials discharge their duties and responsibilities. The court held, among other things, that evaluation of competitive bids, honestly and fairly executed, is proper; that competition obtains when both patented and other acceptable equipment is specified; that public officials may exercise their discretion in awarding contracts after consideration of operating as well as installation costs, contractor experience and other pertinent elements; and that any or all bids may be rejected providing specifications carry such a stipulation.

Public works men and consulting engineers will welcome this powerful, precedent-building decision. It fortifies their authority, the extent of which many probably do not realize. It recognizes that one branch of government may discharge its duties without interference from the courts unless the actions are illegal, arbitrary or fraudulent. It lifts a worrisome load from the shoulders of officials who may be uncertain about the extent of their powers.

More important, the court's dismissal of all charges should do much to discourage commercially incited legal actions aimed at compelling use of unproven or undesirable equipment or materials. Engineers and public officials too often are harassed, put to unnecessary expense and embarrassed without justification by slurs on their reputation and honesty that cannot be substantiated.

Public Housing

With the President's signature affixed to the bill passed by Congress, the federal government will be back in the public housing business. For good or ill that is the will of the people. Not only a majority in Congress attest to this fact, but forty of the forty-eight states have long since enacted public low-rent housing legislation. Many cities have public housing projects in operation, and New York has made a notable success of a program that it has carried on without federal subsidy during the past few years.

This wide acceptance of the principle and necessity of public housing, however, does not mean that the arguments of those who oppose it are without force. They properly pointed out the dangers of subsidizing people into the habit of relying on government instead of striving to be independent; of providing a vast new field where political control can be exercised; of establishing a governmental activity that could grow into a threat to private enterprise. These are warnings that need constantly to be kept in mind by public housing officials as they develop their programs, and administer the projects as they are completed.

Public housing came into being for the purpose of getting the lowest income groups, unable to pay an economic rent, out of disease- and crime-breeding hovels. It has an ancillary use in aiding slum clearance, a much-needed operation that can scarcely be carried on without some sort of governmental aid. Neither of these objectives is a threat to private enterprise, and a public housing program that adheres to them has much to recommend it.

During the past 15 years, about 200,000 public housing units have been built. The new bill envisions 810,000 in the next six years. This is a vastly greater operation than has yet been experienced. At the same time, it is only a small part of the total housing job since something like 5 million privately financed units must be provided in the same period. Properly administered, the public and private housing jobs can supplement one another to the lasting benefit of the nation.

Structural Analysis by Model

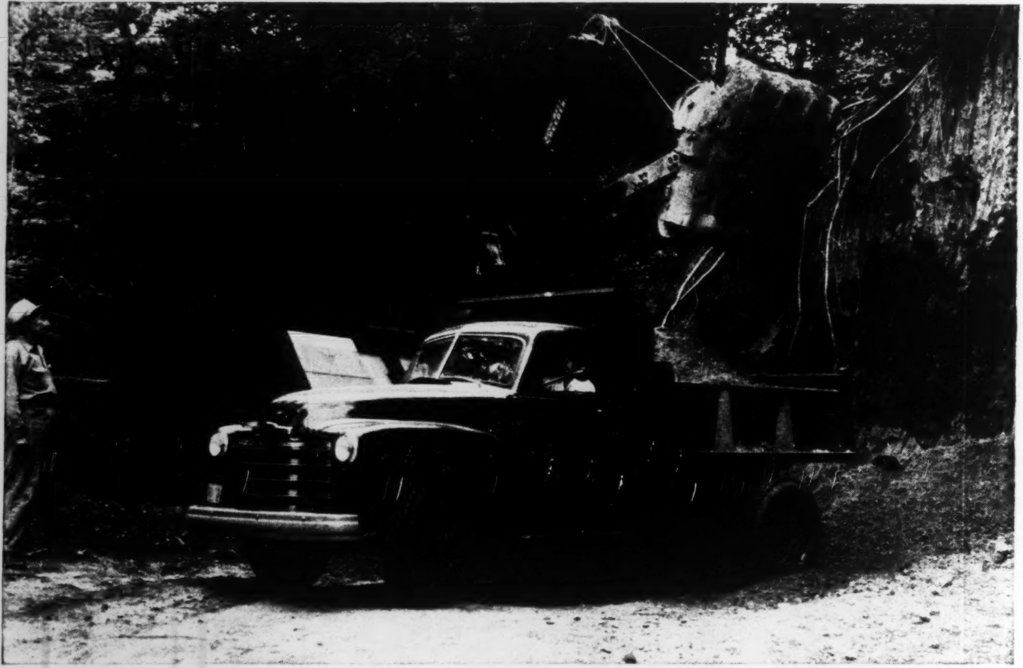
Although reliance on model studies has grown appreciably in the U. S. during the past two decades, the bulk of the work is still concentrated in research laboratories rather than design offices. An exception occurred recently in Los Angeles where the bending moments in the concrete floor slabs of eighteen 13-story apartment buildings were determined with the aid of structural models.

Even more important, a new and promising procedure was used. Developed by Oliver and Gerald Bowen, father and son, it involves photographing the mirrored surface of a model, while it is under load, and then resolving the angular distortions into moments (ENR July 7, 1949, p. 70). Structural engineers in the past have used the Beggs Deformeter, the Gottschalk Continostat and photoelastic apparatus. The new equipment is called Presan, from the initials of its full and mouthfilling name—photo-reflective-experimental stress analyzer.

This first job, including as it did the pioneer development, was relatively expensive, even though it was reasonable for the $50 million project to which it was applied. In the future even relatively small projects are envisioned as being within Presan's scope. If so, it should prove a useful addition to a kit of design tools that is too infrequently utilized in structural designing.

All the facts of value favor

CHEVROLET ADVANCE-DESIGN TRUCKS



America's truck operators are wise buyers. They know the value of prime power with economy . . . of massive load capacity . . . of outstanding quality, durability and handling ease. They know the advantages of the latest and finest features and of greater driver comfort and convenience. And they know that *all* the facts of value favor Chevrolet trucks to an overwhelming degree . . . that they cost less to operate, less to maintain, and have the lowest list prices in the entire truck field. That's why they use Chevrolet trucks more than any other make!

CHEVROLET MOTOR DIVISION, *General Motors Corporation*, DETROIT 2, MICHIGAN

TOP-VOLUME PRODUCTION BRINGS YOU TOP-VALUE FEATURES!

Chevrolet's new 4-SPEED SYNCHRO-MESH TRANSMISSION offers quicker, quieter and easier operation. Double clutching is eliminated because the gears are always in mesh. Faster shifting maintains speed and momentum on grades. Available in series 3800 and heavier duty models.

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**Heating and ventilating system and rear-corner windows with de luxe equipment optional at extra cost.*

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CHEVROLET

ENGINEERING NEWS-RECORD

JULY 14, 1949 VOL. 143 NO. 2

Delivered pricing bill nears enactment in Congress

House and Senate versions are closely similar, so little difficulty is expected in final agreement—Senate action seen coming fairly promptly

Delivered pricing legislation moved last week (July 7) one more important step toward final enactment into law by Congress. The House, after two days of confusing debate, finally approved the O'Mahoney bill pretty much as it passed the Senate (ENR June 16, p. 9).

As things stand now, there's a possibility that the Senate may pass the House version. More likely—because there's bound to be Senate opposition—is that the Senate will call for a conference committee with the House to iron out differences.

Senate action may come fairly quickly, despite the upper house's present debate on the Atlantic Pact. The delivered pricing bill may be brought up during a lull, since it may take only a hour or two to make the decision to send it to conference.

Expect little change

The similarity of the House and Senate versions renders it unlikely that the conference committee will make any significant changes in the bill's language or provisions. And it's a good bet that Truman won't veto the bill that is sent to him.

The big battle in the House was over the so-called Kefauver amendments. The question: Should the fact that a manufacturer was "meeting competition in good faith" be a complete defense against a Federal Trade Commission charge of price discrimination?

This question is the nub of a case won by Federal Trade Commission against Standard Oil Co. of Indiana, which Standard has appealed to the Supreme Court. It is the first case turning on the question of whether the Robinson-Patman law, as it now stands, makes "meeting competition in good faith" a complete defense against a charge of price discrimination.

Senator O'Mahoney's original bill would have made "meeting an equally low price of a competitor in good faith" a complete defense.

But when the bill was debated in the Senate, Kefauver won approval of an important restriction on this point. Kefauver's amendment said that the defense of "meeting competition in good faith" wouldn't apply where the effect of such price discrimination or freight absorption "will be to substantially lessen competition."

When the Senate bill was considered by the House Judiciary Committee, the Kefauver amendments were struck out. Both the FTC and the Anti-Trust Division of the Justice Department testified that they weren't opposed to making "meeting competition in good faith" a complete defense against charges of price discrimination—that is, they were not against dropping the Kefauver amendment.

But when the bill came up for House debate, the House over-ruled the recommendation of its Judiciary Committee. Instead, the House approved substitute amendments offered by John A. Carroll, Denver Democrat, which—most experts believed—are even stronger than the Kefauver language.

Those favoring the Carroll amendment gained strength from the strong fight against the bill by Rep. Wright Patman, Texas Democrat. His contention: Without the Carroll amendments, the bill would give a free hand to chain stores and big manufacturers in running the independent small businessman out of business.

Carroll's amendments now make the House-approved bill read:

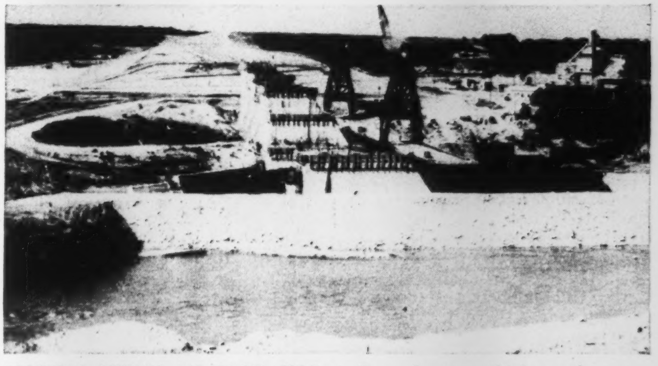
". . . It shall not be an unlawful discrimination in price for a seller, acting independently . . . to absorb freight to meet the equally low price of a competitor in good faith (except where such absorption of freight would be such that its effect upon competition may be that prohibited by this section) . . ."

The language in the parentheses is the House substitute for the Kefauver amendment. It was put into the bill in two different places.

In one place, it refers back to the Sec. 5(A) of the Federal Trade Commission Act. Here, its net effect is to make the House bill mean this:

Absorbing freight in order to meet competition in good faith isn't a complete defense against price discrimination charges—not if the effect of such freight absorption would be an unfair

(*Continued on p. 29*)



CENTRAL TEXAS' $42,000,000 Whitney Dam about one-third complete now, is scheduled to be finished in 1952. Highest point of the concrete section here is more than halfway up. Earth section beyond it forms the new roadbed for Highway 22. Concrete plant may be seen to the right. (Wide World Photo)

Four states OK housing programs of $435 million

Seeking solutions for continuing crowded housing conditions, the legislatures of four states have recently approved new or expanded low-rent housing programs.

The National Association of Housing Officials listed the following:

New Jersey—Approved a $100,000,000 housing and slum clearance program, permitting the state to lend money at low interest rates, first to private industry and then to public agencies to construct about 18,000 apartments. These dwellings would be rented at not more than $50 a month to families whose incomes are not more than five times the rental.

Pennsylvania—This state became the tenth in the United States to approve a comprehensive housing program with approval of a $15,000,000 subsidy to underwrite 35 percent of the cost of construction of low-rent houses by public and private builders.

Connecticut—A housing bill designed to promote the construction of low and moderate rental housing units and single family homes was passed on the last day of the regular legislative session. Under terms of the law, the state's former $45,000,000 bond-guaranteeing program was expanded to $65,000,000 in bonds.

New York—The legislature authorized loans of $300,000,000 for state low-rent housing to provide subsidy for the state's stepped-up program. Approval also was given to measures raising the limit from $1.5 million to $2.5 million on the rate at which subsidies may be increased in any one year. The measures are subject to referendum in the 1949 general elections.

◆

No Senate action on Olds; FPC back on 4-man basis

The Federal Power Commission is operating with only four members once again. And it's a situation which could continue for months. Commissioner Leland Olds' term expired June 22. He had been reappointed by President Truman, but the Senate failed to act on his nomination.

Olds can't participate in FPC decisions until his nomination is confirmed. The nomination is known to have encountered considerable opposition in the Senate. There might be enough to delay committee action until Congress adjourns. Olds weathered a similar confirmation fight in 1944. At that time, he waited nearly three months before being seated.

Ernest B. Black Dies; Former ASCE President

Ernest B. Black, a former president of the American Society of Civil Engineers and senior partner in the Black & Veatch Engineering Co. died July 4 of a heart attack.

President of ASCE in 1942, Black had served in both wars as a consulting engineer on War Department projects. He was an Air Force officer for a short period early in World War I. For many years, he was active in Boy Scout work. A graduate of the University of Kansas, Black was 67 at his death.

◆

Group to present plan for Mississippi roads

A long-range road building program for complete development of a highway network throughout the state of Mississippi is expected to be presented to the legislature at its next meeting. The special legislative committee, appointed to determine the highway needs of the state, will have its report completed by October.

The committee employed the Automotive Safety Foundation to make the necessary field investigations. The foundation worked in cooperation with highway department officials, county supervisors and city officials.

This is the first such report ever made for Mississippi. Recommendations will be made for the development of arterial highways, county roads and city streets. The great amount of information will enable the department to maintain an efficient staff of technicians and engineers to insure continuity of highway building and maintenance, according to Walter Spiva, director.

Pacific builders praise air transport of workers

Air transportation of construction workers has been a definite success, according to spokesmen for several contractors now engaged in building government projects on Pacific islands.

Contractors' representatives point out that they can hire a worker in New York and have him reporting for duty on Guam in 40 hours.

Transocean Air Lines, Oakland, Calif., recently announced that the line had carried its 19,000th passenger between Oakland, Guam and Okinawa.

With its first contract beginning in September, 1947, Transocean has transported men, material and equipment in the company's C-54's for such firms as Morrison-Knudsen, Peter Kiewit Sons, Guy F. Atkinson, J. A. Jones, J. H. Pomeroy & Co., Inc., and the Brown Pacific Maxon Co. Flights have averaged about two a week.

Savings are heavy

Guy F. Atkinson, chairman of the board of directors of the Guy F. Atkinson Co., working with J. A. Jones Construction Co., Okinawa, recently returned from an inspection trip of the project in Okinawa. Atkinson stated that his company had saved thousands of dollars for both contractors and the government by the full utilization of air transportation; that it had saved many hours on the workers' time by being able to establish weekly schedules to transport the men by air, and that construction work was speeded by the arrival of both men and material on the project in a matter of hours instead of days.

Higher rates offset

Air rates are slightly higher than surface travel, but with wages starting at the hiring point and the contractor responsible for board and room en route, the economies of air travel have proven practical.

Extensive savings in board and room costs are realized by avoiding holding large groups for long periods waiting steamer schedules. Economies are also felt at the construction site, because a new worker is on the job within a few days instead of the three or four weeks required by surface travel.

Materials and equipment are usually flown into the Pacific when an emergency occurs. It has been found that it is often cheaper to fly spare parts for broken machines than to hold up a job. The same applies when a shortage of materials occurs.

Truman wants spending plans readied

President Truman's Economic Report to Congress this week definitely recommended no diminution of programs for federal and local public works.

It went a step further, proposing that Congress enact legislation to (1) stimulate advance planning and (2) permit acquisition of project sites.

As expected, the report was optimistic in tone. It noted the recent decline in gross national income, but asserted that within a few years, national output can be expanded 18 to 20 percent.

With the economy still operating at high levels of employment and production, the President declared that the present situation does not call for the government action that would be necessary in a serious economic emergency.

He proposed only limited actions now indicated as helpful to restore economic stability and maximum production and employment.

Truman said it would be economic folly to cut essential national programs now.

Present conditions, he pointed out, lend added importance to public works programs—federal, state and local—as a means of maintaining purchasing power and stimulating investment.

Multi-billion proposals

His January budget proposals, he reminded Congress, called for federal public works expenditures of $3 billion in the current fiscal year, as compared with $2¼ billion in fiscal 1949. Continuing the programmed projects, even without any new starts, would require some $3 billion in each of the fiscal years 1951 and 1952.

Coupled with private construction expenditures at the current rate—and with local and state expenditures at a rate exceeding $3 billion—this federal program should maintain the construction industry at a high level, strengthen the whole economy, Truman said.

In his words, the situation does not call for an immediate and sweeping expansion of public works. But it does indicate "precautionary preparation of measures" that might be necessary if the business downturn became more serious. Such measures, he said, will serve to inspire confidence and reduce businessmen's doubts.

For these purposes he urged Congress (1) to legislate federal loans to assist states and local governments in advance public works planning; (2) to appropriate so the Public Buildings Administration may carry out the advance planning and site acquisition recently authorized for federal buildings; (3) to let the Bureau of Public Roads make advances to states for acquiring and clearing rights-of-way; and (4) to provide authority and money for the school construction surveys and plans which the President had recommended previously.

Tax provisions

As a general aid to all business—including construction—the President suggested (1) removal of the tax on transportation of goods and (2) liberalized provisions for loss carry-over in the corporate income tax laws—as an incentive to investments. Revenue losses from these sources could be made up by raising estate and gift tax rates, without adverse effect. The President opposed any tax reductions beyond these two.

He asked legislation extending the maximum period of RFC loans, to assist sound business ventures which require a long time for development before they can retire their debts.

With his message, the President sent to Congress the midyear report by his Council of Economic Advisers. The Council found that construction at present is a factor of underlying strength.

New investment in plant and equipment was higher in the first quarter of 1949 than a year earlier and continues at a high level, the Council's report pointed out.

Further, it saw no indication of an early letdown of serious proportions, though the situation six months ahead remains uncertain.

High level maintained

In the second quarter of 1949, the economists said, dollar volume of plant and equipment outlays apparently was no higher than a year earlier, though still at a high level. An SEC-Commerce sample survey in May showed that businessmen expected to spend 4 percent less in the third quarter than in the second. Taking into consideration the decline in costs of construction and equipment, the dollar decrease probably means no reduction in physical volume, the report asserted.

For the fourth quarter of this year, construction contracts and equipment orders indicate that outlay will be less than in the same month of 1948. Plant and equipment investments in that quarter were running at their highest annual rate—$21.64 billion per year.

In public works, the economists saw another element of strength. Expenditures of federal, state and local governments will be expanding, they predicted.

Public construction, their report said, has been the most sharply rising component in the activities of state and local governments since the end of the war.

State-local construction in 1948 was 46 percent above 1947, and for the first half of this year was 42 percent above the same period of 1948. Progress is being made in building schools, hospitals, streets, highways and other community facilities, but the unsatisfied requirements are still very great, the report pointed out. In physical volume, state and local construction is still below the level of 1930. With construction costs going down, the economists urged a stepup of local planning to take advantage of the situation.

HUNGRY HORSE ONE YEAR LATER—In twelve months since construction started (July 10, 1948) on General-Shea-Mirrison's $43,000,000 contract, Bureau of Reclamation's big Montana project shows these changes: "switchback" roads cut into canyon walls; three-fourths of 1,000,000 yd. excavation for dam and powerhouse completed; diversion tunnel in operation, and concrete plant nearly ready to place first batch of estimated 3,000,000 cu. yd. in September.

Interstate roads need $11 billion

MILEAGE OF INTERSTATE HIGHWAY SYSTEM
AND ESTIMATED COSTS OF IMPROVEMENTS

STATE	RURAL ROADS		URBAN ROADS		TOTAL
	Mileage	Est. Cost	Mileage	Est. Cost	
ALABAMA	826.2	$73,306,050	64.6	$14,670,200	$87,976,250
ARIZONA	1,123.3	80,579,000	13.6	11,529,000	92,108,000
ARKANSAS	476.5	58,752,400	41.3	19,536,800	78,289,200
CALIFORNIA	1,714.2	552,672,000	186.3	616,755,000	1,169,427,000
COLORADO	627.1	39,175,883	34.6	33,117,640	72,293,523
CONNECTICUT	163.3	155,706,000	99.1	155,706,000	219,302,000
DELAWARE	22.9	25,019,500	2.6	24,409,000	49,428,500
FLORIDA	1,012.6	63,137,100	128.6	52,125,400	115,262,500
GEORGIA	1,027.3	103,148,750	83.3	72,578,835	175,727,585
IDAHO	608.2	46,773,000	8.7	3,470,000	50,243,000
ILLINOIS	1,314.1	321,168,042	226.8	535,209,461	856,377,503
INDIANA	906.0	139,233,570	159.4	250,203,840	389,437,410
IOWA	640.5	68,935,700	29.7	9,413,000	78,348,700
KANSAS	672.8	71,698,390	28.7	18,085,000	89,783,390
KENTUCKY	578.8	100,534,698	69.6	81,398,001	181,932,699
LOUISIANA	470.7	89,065,900	126.4	131,944,000	221,009,900
MAINE	277.8	43,740,000	22.6	30,431,000	74,171,000
MARYLAND	219.8	140,493,484	45.7	101,784,296	242,277,780
MASSACHUSETTS	176.8	112,783,600	159.0	339,112,500	451,896,100
MICHIGAN	894.1	181,335,450	68.4	235,063,700	416,399,150
MINNESOTA	766.9	58,395,501	83.6	103,115,543	161,511,044
MISSISSIPPI	569.3	62,017,800	121.7	26,122,000	88,139,800
MISSOURI	1,032.8	133,579,990	38.0	101,704,000	235,283,990
MONTANA	1,217.4	108,507,450	26.3	8,097,000	116,604,450
NEBRASKA	453.9	40,869,000	6.7	7,370,000	48,239,000
NEVADA	526.3	17,940,300	11.0	1,628,000	19,568,300
NEW HAMPSHIRE	169.0	26,910,000	32.0	13,419,000	40,329,000
NEW JERSEY	90.3	59,703,300	102.1	344,350,100	404,053,400
NEW MEXICO	989.7	52,257,000	22.8	5,852,700	58,109,700
NEW YORK	962.3	643,146,000	72.0	219,135,000	862,281,000
NORTH CAROLINA	637.0	42,993,000	75.7	29,864,000	72,857,000
NORTH DAKOTA	478.8	29,365,120	19.5	15,785,600	45,150,720
OHIO	999.8	396,185,000	216.6	362,406,000	758,591,000
OKLAHOMA	734.4	136,767,500	45.7	29,650,000	166,417,500
OREGON	675.2	94,450,000	27.8	23,465,000	117,915,000
PENNSYLVANIA	1,025.9	528,013,000	331.0	398,566,000	926,579,000
RHODE ISLAND	23.4	6,082,000	25.2	79,925,976	86,007,976
SOUTH CAROLINA	604.5	39,425,750	92.5	80,143,000	119,568,750
SOUTH DAKOTA	499.5	40,196,800	15.2	4,638,000	44,834,800
TENNESSEE	967.2	172,634,734	77.7	69,022,782	241,657,516
TEXAS	2,573.0	286,883,400	191.8	149,104,200	435,987,600
UTAH	672.3	61,208,300	31.8	23,045,000	84,253,300
VERMONT	311.4	47,508,220	28.4	6,910,300	54,418,520
VIRGINIA	844.6	170,536,000	57.1	36,773,000	207,309,000
WASHINGTON	521.0	118,363,500	58.5	66,096,600	184,460,100
WEST VIRGINIA	165.7	94,514,500	46.2	112,095,000	206,609,500
WISCONSIN	424.4	75,025,050	24.7	52,178,950	127,204,000
WYOMING	949.0	54,309,750	23.7	5,759,910	60,069,660
DISTRICT OF COLUMBIA	–	–	16.6	180,670,000	180,670,000
NATIONAL TOTALS	33,638.0	5,972,936,482	3,520.9	5,293,435,334	11,266,371,816

It'll be an $11.25 billion dollar job to bring the nation's 38,000 miles of trunkline highways up to present-day standards—both from the traffic and national defense standpoints.

This is the conclusion of the Public Roads Administration's recent report to President Truman. And PRA urges that the country get at the job promptly. It says that the needed improvements must be undertaken within a maximum period of 20 years. But national defense needs, the report goes on, "require substantially more rapid improvements." And the U. S. would realize substantially greater economic and social benefits if the job were done sooner than over the next 20 years, PRA insists.

Even at the 20-year rate, PRA's report declared, the job would require capital investment averaging $500 million yearly, and it adds that "no less provision can be justified economically." Presently though, federal funds are being assigned to projects on the interstate highway system at a rate of about $75,000,000 yearly.

This disparity, PRA suggests, might be resolved by the introduction of two financing techniques which it never before advocated.

1. The federal government, PRA suggests, might lift its participation in the cost of improvements beyond the 50 percent level presently authorized. At the same time, it might earmark additional appropriations for the interstate highway system. Such funds might be apportioned among states to permit substantially equal progress. The report recommended this.

2. Even more specifically, PRA suggests that states which borrow to speed improvements on their interstate highways be permitted to retire indebtedness—exclusive of interest—from subsequent federal allotments. Such a provision, obviously, would permit a state to pay the entire first cost of improvements with federal funds. "It would seem desirable," the report says, to amend federal highway legislation to furnish such aid and incentives.

The $11.25 million which PRA finds the price tag for highway sufficiency is based on 1948 costs. Of it, about $5.3 billion would be required within cities of 5,000 people or more—where improvements are most expensive. Almost $6 billion would be devoted to rural interstate highways, which comprise more than 90 percent of the 37,800-mile interstate system.

Wants spending level held

As for appropriations for all federal-aid systems—primary, urban and secondary—PRA feels they should go forward "at rates not less than those established by the Federal-Aid Highway Act of 1948. That's at the rate of $450 million yearly. The interstate highway network primary and urban, makes up about 17 percent of the federal-aid system.

The military, which cooperated in the study, pointed out that there may be additional routes—probably not exceeding 2,500 miles—as important strategically as some now included in the interstate system. PRA's report suggests that such roads doubtless are presently in the primary system.

Improvement of other systems—both primary and secondary—is subordinate only to the needs of the interstate system, PRA makes it clear.

PRA wants any future legislation "broad enough to cover national emergencies of war or peace." It wants highway appropriations divertible to other purposes when necessary, with the divertible amounts specified and with provision made for their replacement. For "war-necessitated" construction, federal repayment up to the full cost should be allowed, PRA says. And it wants roadbuilding materials and equipment, and portable bridges, stockpiled against war needs—enough for six months.

Underscoring its finding of need for vast improvement—and soon—PRA pointed out that 52 percent of the high-type pavements, 85 percent of intermediate type and 93 percent of the low-type surfaces on the interstate system will need replacement in the next 10 years.

EMPLOYEES LEARN HOW the Dravo Corp. builds piers for a four-lane highway bridge over the Monongahela River, at Belle Vernon, Pa. Such inspection trips are part of the company's employee relations program. Here, cellular sheet steel caissons make up a cofferdam for two large piers, an unusual technique for this type of river construction.

Coast water district plans aqueduct, three new dams

San Francisco's East Bay Municipal Utility District has filed application for rights to an additional 125 mgd of Mokelumne River water. The California MUD is planning to build three more dams on the river, add spillway gates at Pardee Dam, and construct a third aqueduct to the East Bay.

Storage capacity on the river will be increased from 68 billion gallons to more than 183 billion gallons, making a total of 349 mdg. available. The present average consumption is 110 mdg.

The project will include a dam 119 ft. high below Pardee Dam, near Clements, forming a 212,000 acre-ft. reservoir. A second dam, 187 ft. high, will be built above the present 210,000 Pardee Reservoir, at Middle Bar. This reservoir will have a storage capacity of 44,000 acre-ft. The third dam, on the South Fork on the Mokelumne, near Railroad Flat, will be 340 ft. high and will create a storage basin of 80,000 acre-ft. In addition, crest gates will be installed on the Pardee Reservoir spillway, increasing its capacity by some 17,000 acre-ft.

The third Mokelumne aqueduct will be required to deliver the additional water to the East Bay. Provision was made for such a pipeline in the original Mokelumne project plans.

Since it is not known what conditions will exist at the time of construction, K. L. Hamman, president of the district, could not estimate the total cost of the project. He said, however, that it was probable the cost would exceed the $39,000,000 spent for the original Mokelumne project.

Planning ahead some 30 or 40 years the district estimates that the Mokelumne water supply will be adequate for a population of some 2,600,000. The utility district now serves about 900,000 users.

◆

Revive plan to control Niagara River flow

The idea of constructing gates across the Niagara River at Buffalo, N. Y., to control the flow of water over Niagara Falls — 20 miles downstream — has been revived in connection with plans for complete redevelopment of hydroelectric power facilities at the falls.

This was disclosed recently as engineers for power-regulating authorities continued field studies, preparatory to making recommendations. Representatives of the Federal Power Commission, the Ontario Hydro Electric Commission and the New York Power Authority were at the falls going over proposed sites for power plants.

The gates would serve to impound the lake water and regulate the volume of water going down the Niagara River.

This, it was said, would insure an adequate flow of water over the cataract to preserve the daytime beauty of the falls, and at the same time make possible the diversion of large additional daytime amounts of water to hydro-plants. These, in turn, would be able to meet greatly increased daytime demands of industrial plants.

Lake Erie, in effect, would become a reservoir. Some of the water flowing into the Niagara River would be held back at night, then released during the day.

◆

Group named to interpret standard plumbing code

A five-man interpretation committee has been set up by the American Society of Mechanical Engineers and the American Public Health Association to answer queries on provisions of the recently approved standard plumbing code.

Sponsored by ASME and APHA, the new code was written by representatives of 30 cooperating organizations, and was 11 years in the writing. Adoption of the code by cities is expected to help standardize practice.

Members of the interpretation group are: chairman, A. H. Morgan, director, division of building management, New York City Department of Public Works; C. A. Holmquist, representative of the New York State Health Department during writing of the code; F. M. Dawson, dean, college of engineering, University of Iowa; M. Warren Cowles, health officer; and V. T. Manas, Housing and Home Finance Agency.

Canyon Ferry construction to begin next week

Construction of the Reclamation Bureau's Canyon Ferry dam will get under way July 22 on the Missouri River 17 miles east of Helena, Mont.

Canyon Ferry is the key unit in the development of the upper Missouri Basin, above Fort Benton, Mont. A contract for construction of the gravity-type concrete dam, rising 172 ft. above stream bed and 1,000 ft. long at the crest, was recently awarded to Canyon Constructors, of Los Angeles, Calif., on their low bid of $11,896,425 (ENR May 5, p. 12). Joint ventures in the contract group include Brown & Root, Inc.; Wunderlich Contracting Co.; and the J. C. Maguire and Griffith Companies. Work on the government camp at the damside is nearing completion.

A powerhouse, to be constructed as an integral part of the dam, will have an installed capacity of 50,000 kw. The power will be used for irrigation pumping, with the surplus serving other uses in the area.

◆

San Joaquin dam gets OK; to cost near $20 million

Southern California Edison Co. recently got a 50-year license from the Federal Power Commission for construction of a 115,000-hp. hydroelectric project on the San Joaquin River in Central California. The development will cost nearly $20,000,000.

Plans call for a concrete arch dam 228 ft. high, with a crest length of 954 feet, to impound a 5¼ mile-long reservoir of 35,000-acre-ft. capacity. Other features of the project include a pressure tunnel more than 2 miles long; an intake structure; penstocks and surge tank; and a powerhouse with two 57,500-hp. hydraulic turbines.

Congress shies away from settlement of Colorado River water controversy

Proposed amendment, aimed at having Supreme Court rule on the dispute, fails to require clear-cut decision, Californians insist

Congress is not yet ready to back a bill giving paper authorization to the Central Arizona project, even when coupled with a stopper that would put the Colorado River controversy before the Supreme Court.

Sen. Sheridan Downey, California Democrat, defined his state's position in a report submitted last week (July 7). Basic reason for the opposition is this: The amendment would not require conclusive determination of Colorado River water rights by the Supreme Court.

Under the present law of the river, water for the irrigation features of the proposed project would be available to Arizona only if that state's claims are valid. Disputing those claims, California has long sought the right to bring Supreme Court suit to decide the issue. There is not enough water in the river to take care of planned projects in both states.

Development awaits compromise

Involved questions—both legal and technical—are at issue (ENR June 3, 1948, vol. p. 915). Until these questions are decided, development of the Lower Colorado can not proceed. Both California and Arizona desperately need further development of the river.

In Arizona, the urgent need is for water. Across the river, California's requirements call first for power, later for more water. The Central Arizona project ties power and irrigation together in one package (ENR June 13, 1948, vol. p. 921).

Power would come from a 750,000-kw. installation at the proposed Bridge Canyon Dam, 673 ft. high, on the Colorado above Lake Mead. Water for Central Arizona would be diverted from the river 200 mi. downstream and pumped uphill through a total lift of 985 ft. for delivery by an aqueduct 240 mi. long. At July, 1947, prices, the Reclamation Bureau has estimated the proposed works would cost $378 million.

On both an engineering and an economic basis, grouping of the power and irrigation features in one project is necessary to make the irrigation scheme feasible. In its report of December, 1947, the Reclamation Bureau showed how (1) about one-third of Bridge Canyon power would be needed for pumping and (2) revenues from the sale of the remainder could be used to pay for the irrigation works.

Under this arrangement, a reasonable sales price of less than 5 mills per kwh. at the bus bar would require that the repayment period for the power features—and perhaps also for the irrigation works—be extended to 78 years, the report pointed out. This extension would require amendment of the Reclamation Project Act, limiting repayment to 50 years. On the condition that settlement of the Colorado dispute first assure water for the project, Reclamation Commissioner Straus, in January, 1948, recommended that the Central Arizona scheme be authorized for construction.

Other departments and agencies found flaws in the report, as Sen. Downey pointed out last week. Their objections add up to a formidable list of reasons for further study.

Sen. McFarland, Arizona Democrat, introduced a bill early this year to authorize the project—as proposed by Reclamation—plus an 80-mi. tunnel and main canal from Bridge Canyon reservoir. This last item is a high-cost substitute that hypothetically might be built in the future to replace the original aqueduct and release pumping power for other use. The bill was getting nowhere before the Interior Committee until Chairman O'Mahoney and Sen. Millikin came up with an amendment (ENR June 30, p. 13). In substance, the amendment would give government consent to a Supreme Court suit and would stop any expenditure of money on the project until the court had handed down a decision.

Gets Republican support

On this basis, the committee voted 9-3 to report the amended bill. Sen. Downey was joined by Sens. Butler, Nebraska, and Cordon, Oregon, both Republicans, in voting against it. They are not expected to sign Downey's minority report.

Final drafting of the amendment and majority report had not been completed at the first of this week. Both were to have been approved shortly, however.

Crux of California's opposition to the amendment lies in the phraseology authorizing a Supreme Court suit. Attorney General Clark also has criticized the language as misdescribing the point to be adjudicated and unduly limiting the scope of the litigation.

Even more important, the amendment apparently would permit the project to go ahead after high court action—unless the court declared definitely that Arizona is not entitled to the water. In other words, money could be spent on the project even if the court threw out the case on a technicality, or rendered an inconclusive verdict that fell short of affirming Arizona's rights to the water.

The amended bill has little chance of reaching the Senate this session. Further action is expected to be postponed until January.

◆

TVA is ready to propose French Broad flood plan

TVA is "about to recommend" a $20,000,000 flood control program under which it would build seven reservoirs on streams in the Upper French Broad valley.

Also included would be erection of dykes and dredging or channel correction on the French Broad and Swannanoa Rivers. Carrying out of the project works would depend upon willingness of residents and landowners in western North Carolina to participate.

TWELVE TONS PRESSURE, exerted by a 15-mph. wind, made it difficult to place this 37-ton, 96-ft. girder for a Great Northern railway bridge in central Washington's Cascade Mountains. Thirty tons of steel beams helped balance the girder 150 ft. above Nason Creek. The bridge and a tunnel will eliminate five sharp curves, will cost $1,000,000. John T. Ellis directed operations for the American Bridge Co.

Basing point bill ready for final enactment

(Continued from p. 23)

method of competition, or an unfair or deceptive act or practice, as outlawed by Sec. 5(A) of the FTC Act.

In the second place, the House amendment refers back to the Robinson-Patman amendment to the Clayton Act. Here, the House amendment says in effect:

Meeting competition in good faith is a complete defense against price discrimination except ". . . where the effect of such discrimination may be to substantially lessen competition or tend to create a monopoly in any line of commerce, or to injure, destroy or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination, or with customers of either of them . . ."

This language pleases Patman, who led the opponents of the bill in the House.

In his opinion, the House amendment is stronger than the Kefauver amendment—and there seems to be little doubt that this amendment leaves intact the basic provisions of the Robinson-Patman act against price discrimination.

◆

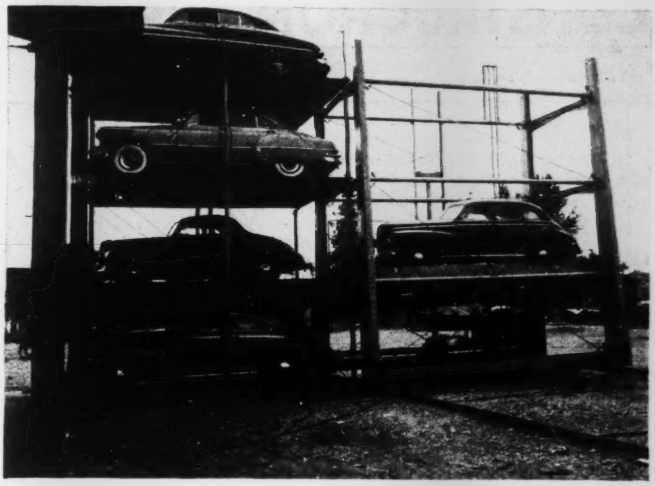
Costs continue decline, New York to push housing

New York State's homeless and its jobless stand to benefit by the continuing drop being shown by construction costs.

State Housing Commissioner Herman T. Stichman says he's trying to expedite the placing of more building contracts throughout the state. This decision followed bidding on a Utica state-financed housing project. Bids there showed a 6 percent drop below the average of bids received on five similar projects during the last year. Those bids, in turn, showed a lowering of construction costs, Stichman said.

The four major bids on the Utica project—general construction, heating, electrical work and plumbing—totaled $6,918 per unit, a 15 percent reduction from the budget estimate for the job. The general construction component of this total was $5,360 per unit.

First indication of dropping costs, Stichman said, came last year on a rebidding of the state-financed Glen H. Humphrey Gardens, in Utica. It yielded a per unit average for the four major contracts of $7,131. Since that time, he said, construction costs generally have dropped about 5 percent nationally.



Outdoor elevator eases city parking problems

You may be parking your car in a device such as that shown above, within a few years. The reason: its makers claim it will triple the capacity of single-level parking lots—at one-tenth the construction cost of a ramp-type garage and at considerably lower labor and operating costs.

A small car lift slides under the car to be parked, lifts it a few inches off the ground and carries it into the main elevator. The elevator moves sidewise along standard railroad track until it finds an empty stall, then lifts the car to it. Then the car lift carries the auto into the stall and sets it down. Operating time averages 30 seconds, which should help make it attractive in heavy-traffic areas.

The elevator is 19-ft. long, capable of handling the longest cars. Moving between two rows of stalls, it can serve either side. It is powered by a 30-hp. electric motor which drives the elevator's hydraulic equipment and a 3-hp. motor to drive the car lift. Developed by Leo and V. A. Sanders, Portland, Ore., brothers, it is to be manufactured by The Peters Co., of Portland. The elevator costs about $8,500, the storage racks $175 per car. It's vouched for by the Portland Chamber of Commerce.

Victoria arena first of type in Canada

Construction nears completion on the Memorial Civic Arena in Victoria, B. C. This structure, started in 1945, is the first of its type to be completed in Canada with a thin-shell, reinforced concrete barrel arch roof.

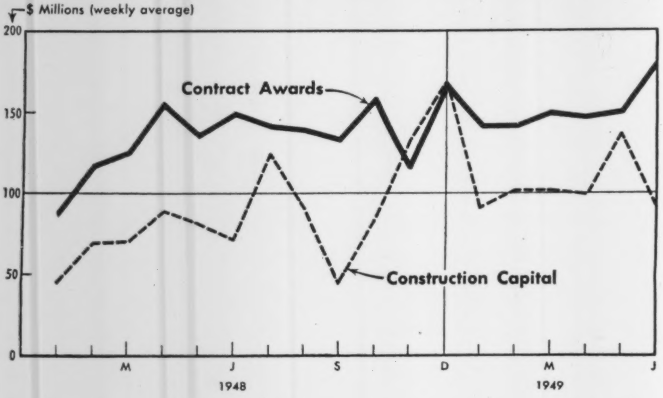
The main portion of the building will house a multi-purpose arena floor —equipped with refrigerating pipes for ice skating—and will be 165 ft. wide by 280 ft. long. The eight 165-ft. arches are 18 in. thick and 5 ft. 6 in. deep at the crown. They are on 40-ft. centers.

Roof slabs are 3½ in. thick to within 4 ft. of the arch ribs, where they thicken to 5½ in. The underside of the slabs are flush with the intrados of the arches, giving the building a smooth ceiling 63 ft. above the floor at its centerline.

Seating capacity is 4,200. This figure can be increased materially, when the building is used as an auditorium and the concrete floor of the arena is used for seating.

Charles T. Hamilton of Vancouver was consulting engineer on the project. D. C. Frame, Douglas James and Hubert Savage, all of Victoria, were architects. Foundation work was done by G. H. Wheaton, Victoria, and Bennett & White Construction Co., Vancouver, built the barrel-arch roof. Other portions of the work were done by Lumey Bros. and Hamilton, of Victoria, and city's own forces.

CONSTRUCTION BUSINESS



Contract awards and new capital up as 1949 sees increased public works

Heavy engineering contract awards and new construction financing for the first half of 1949 show a widening variation from the patterns of preceeding postwar years.

1. The most pronounced shift has been in the direction of state and municipal construction activity. This is reflected in financing as well as in contract awards.

State and municipal contract awards at the close of the half were 24 percent ahead of last year, while federal awards gained only 5 percent and private 17 percent. Bond issues by state and municipal groups are 50 percent higher than last year, with corporate financing ahead just 29 percent.

This spurt in availability of public capital probably means that the margin of public contract awards over private will widen in the next six-month period. At the half, public awards were 7 percent greater than private. Nearly 52 percent of heavy construction financing was carried on by public groups in first-half 1949, compared with 48 percent last year.

2. This year, so far, has not seen the accustomed seasonal variations in contract volume. Awards during the first five months ranged between $140 and $150 million weekly (average for the month), while last year the range was from a low of $88 million weekly in January to $155 million in April. Both private and state and municipal awards have been fairly steady during the six months, with strong federal spending in January and March helping put those months over $140 million-a-week.

3. A definite relationship between capital movement and contract awards is reflected in a comparison of this year's tally with 1948 figures: both contracts and capital topped last year by the greatest margin in January, and saw their poorest relative month in April. Contract awards are now gathering momentum again, with sewerage, highways, public buildings and unclassified (pipelines, transmission lines etc.) leading in recent gains. June awards were 20 percent over last year compared with a minus five percent in April; and new capital for construction jumped to 35 percent above June 1948 from an April lead of only 10 percent.

◆

Construction halted on $100 million program

Work has stopped on $12,000,000 of improvements and expansion projects of the Illinois Bell Telephone Co. and the company ordered that no commitments be made on proposed construction to cost another $34,000,000. The delay—ascribed to financing—will be indefinite. It affects almost half of the company's contemplated $100 million construction program.

The action came when a temporary injunction allowing the company to collect an additional $26,500,000 annually from its customers (despite Illinois Commerce Commission ruling) was denied by Superior Court. The commission granted only $7,600,300 of $34,100,000 requested by the telephone company.

Company directors also have voted to withold further authorization for short term borrowing. Construction in the last 12 months has been financed by short-term loans, of which about $90,000,000 are presently outstanding.

◆

Construction equipment shipments down 9%

First quarter shipment of EXCAVATING and EARTHMOVING EQUIPMENT, at $126.6 million, dropped 9 percent below the fourth quarter of last year. They were slightly higher than third quarter shipments but 2.4 percent below the average for the first half of 1948 as reported in Facts for Industry by the Bureau of Census.

TRACKLAYING TRACTORS broke their own record, a 2.3 percent gain over the 4th quarter of '48, with shipments up to $50.9 million. WHEEL TRACTORS are up 8.7 percent above the 4th quarter with a $4 million volume, but are below their record of $6.3 million in the first quarter a year ago.

POWER SHOVELS and CRANES shipments at $31.1 million are 24.4 percent below the 4th quarter and 21.6 percent below the average for 1948.

ROAD CONSTRUCTION and MAINTENANCE machinery shipments at $28.3 million are down 8.3 percent from the 4th quarter, 1.4 percent from the 1948 average.

CONSTRUCTION MACHINERY MOUNTED ON TRACTORS at $10.5 million is 10.8 percent below the 4th quarter but only 7.75 percent below the 1948 average.

PORTABLE WELL and BLAST HOLE drills are down 4.9 percent from the 4th quarter to $1.67 million and 39 percent below the 1948 average.

Corresponding data on concreting machinery and miscellaneous, reported in 1946, were discontinued in 1947.

Record postwar EXPORTS of excavating and earthmoving equipment, not including power cranes and shovels, topped $26.6 million for the first quarter of 1949, 11.8 percent above the high 4th quarter of 1948 and 34 percent above the 1948 average.

◆

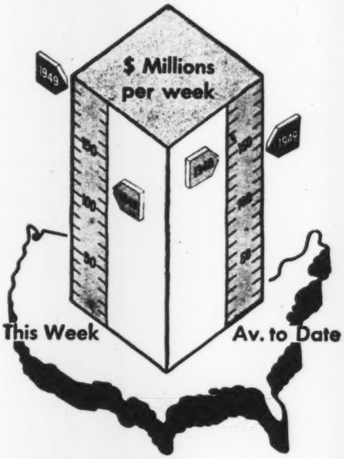
RFC ends mortgage buying; loaned $1 billion in year

The Reconstruction Finance Corporation, which made approximately a billion dollars worth of secondary mortgage loans during the past 11

(*Continued in col. 2, p. 31*)

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	July '49	477.46	229.56
Building Cost	July '49	349.39	188.87
Volume	June '49	326	143



Activity This Week

As reported to ENR
(in millions of dollars)

Amount of Contracts let

	Week of July 14 1949	Cumulative 1949 (28 wks.)	Cumulative 1948 (29 wks.)	Cumulative % chge av.wk.
Federal	$41.4	$627.4	$578.2	+12
State & Mun.	87.4	1,644.6	1,351.5	+26
Total Public	$128.8	$2,272.0	$1,929.7	+22
Total Private	61.5	2,016.8	1,859.9	+12
U. S. Total	**$190.3**	**$4,288.8**	**$3,789.6**	**+17**

Contracts by type of work

	This Week	Cumulative 1949 (28 wks.)	Cumulative 1948 (29 wks.)	Cumulative % chge av.wk.
Waterworks	$ .9	$89.1	$103.8	−11
Sewerage	4.5	135.5	119.5	+17
Bridges	3.7	183.0	164.3	+15
Highways	23.9	460.7	556.6	−14
Earthwork, Waterways	14.2	329.9	294.8	+16
Buildings,				
Public	61.3	898.7	572.1	+63
Industrial	12.6	524.7	560.6	−3
Commercial	44.1	1,269.6	1,067.9	+23
Unclassified	25.1	397.6	349.9	+18

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (28 wks.)	Cumulative 1948 (29 wks.)	Cumulative % chge av.wk.
NON-FEDERAL	$2,836.9	$4,243.2	−31
Corporate Securities	1,391.5	1,225.9	+18
State and Municipal	1,445.4	1,031.1	+45
Federal-Aid Highway	....	427.3	....
FEDERAL	......	1,558.9	....
Total Capital	**$2,836.9**	**$4,243.2**	**−31**

(*Continued from p. 30*)

months, has reached the limit of funds available to it for that purpose.

RFC bought only home mortgages guaranteed by the Veterans Administration or insured by the Federal Housing Administration, when banks or other original mortgage lenders found themselves loaded to capacity. This made more money available for building and buying of new homes. No mortgage was in excess of $10,000 face value per dwelling unit.

Legislation is pending to allow RFC additional mortgage-buying authority.

AGC cost index up

The Construction Cost Index of the Associated General Contractors of America shows its second increase of the year in June, climbing three points to 343. This tops the previous postwar peak of 341 which prevailed from September 1948 to January of this year, and is 11 points above the June index value last year.

The low for the AGC index in 1949 came during the months of February and March when it eased to 339, four points below the current record high.

Non-ferrous metals firmer after three-months decline

Non-ferrous metals prices have apparently hit bottom after their steady three-month decline, and the end of one of the most successful postwar buyers' strikes is in sight.

Recent reports indicate mounting order volume and stiffening prices for copper, zinc, brass and lead.

Copper prices last week gained one cent in a day of heavy trading, rising to a new price of 17 cents a pound. At the same time, Revere Copper & Brass Inc. announced a new "firm" sales policy, discontinuing "price in effect at time of delivery." Copper fabricators are upping their price lists to reflect 17-cent smelter copper.

A one-cent rise in lead prices during the week brought lead up to 13 cents a pound, still 8½ cents below March high.

Zinc prices have stiffened to 9.2 cents on futures from a recent low of 9 cents a pound. This is still only 53 percent of the 17½ cent March high. Brass ingots moved up from ½ to one cent for all grades except one.

The BLS metals and metal products index is steady for the week at 165.6, but is 3.6 percent above the corresponding week of 1948. It is the only commodity group in the all-commodity index in which prices average higher than a year ago.

BIDS AND BIDDERS

Medical Center—Louisiana State Division Administration, Baton Rouge, has awarded contract for construction of Confederate Memorial Medical Center, at SHREVEPORT to J. A. Jones Construction Co., Shreveport, at $6,029,000.

Duplex Apartments—Haddock Engineers, Ltd., Sante Fe, N. M., will construct frame duplex apartments and utilities at LOS ALAMOS, N. M., for the U. S. Atomic Energy Comm., to cost $5,405,750. Carter & Burgess, Fort Worth, Tex., and Walter W. Cook Associates, Dallas, Tex., are architects.

Bridge—McLean Contg. Co., Baltimore, Md., has been awarded contract for the Potee Street Extension over Patapsco River by the city of BALTIMORE, at $1,397,200.

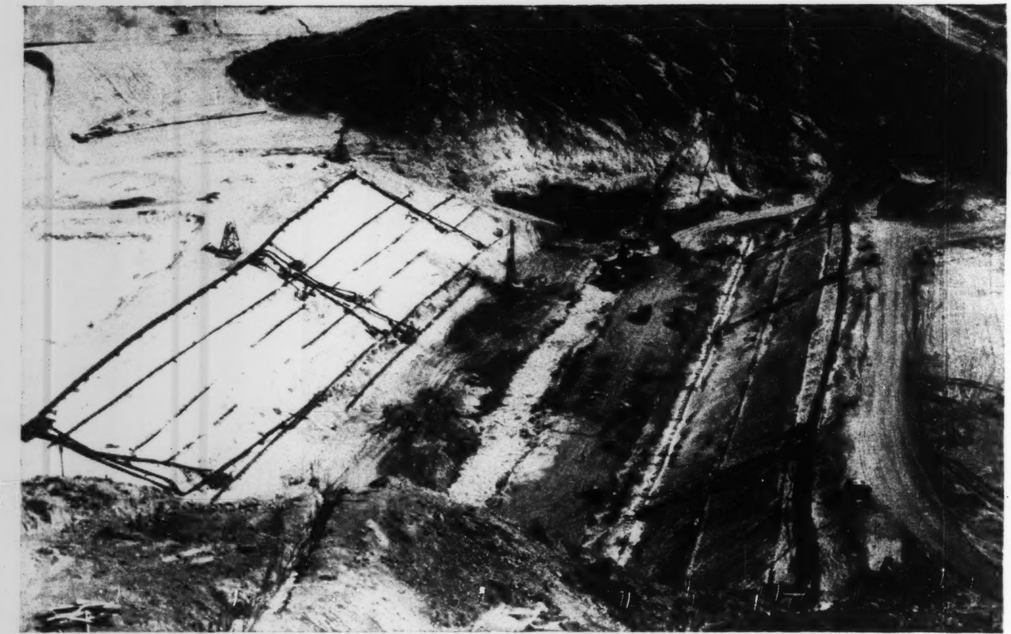
Overhaul and Repair Building—The Officer in Charge of Construction, Naval Air Station, Quonset Point, R. I., awarded contract for engine overhaul and repair building extension at QUONSET NAVAL AIR STATION, to Ayers-Hagan, Inc., Providence, at $1,759,071. Edmund J. Rappoli Co., Inc., Cambridge was low bidder at $1,593,000 but contract was awarded on various alternates.

Soap Factory—Colgate-Palmolive-Peet Co., Jersey City, N. J., let contract for soap factory at KANSAS CITY, KAN. to S. Patti Constr. Co., Kansas City, Mo. The estimated cost of the plant is $2,000,000. Albert Kahn Associates, Architects and Engineers, Inc., Detroit, Mich. designed the project.

High School—School Board, FAIRBANKS, ALASKA will take bids July 31, for the construction of a high school to cost $2,500,000.

Absorption Plant and Lines—McCarthy Oil & Gas Co., Houston, Tex. plans to construct gasoline absorption plant and lines in NEW ULM area, Tex., at about $5,750,000.

Road—Maryland State Roads Comm., Baltimore, awarded contract to M. J. Grove Lime Co., Lime Kiln, Md., for improving relocation Route 40, Allegheny and Washington Counties at $2,090,212.



MORE THAN 2,400 WELL-POINTS, supplemented by French drain (center) keep cutoff trench dry at Davis Dam site.

Davis Dam Fill Made in Record Time

TEN MONTHS from river diversion to completion of the fill is the record made by the Utah Construction Co. on the 3,670,000-cu.yd. earth-and-rock-fill for Davis Dam on the Colorado River. Involved were: Excavation of a 55-ft. deep cutoff trench, installation of 2,400 well-points, and placing and compacting three types of fill material.

The contractor set a new record for Bureau of Reclamation jobs by placing 730,000 cu.yd. of fill in one 30-day period. This tops the 700,000 cu.yd. record made only recently at O'Sullivan Dam on the Columbia.

A heavy concentration of equipment working on a three-shift basis, with non-productive time minimized by good maintenance procedures made the record possible.

Of greatest importance were the shovels and rubber-tired earth movers. Five shovels of 2½- and 3-cu.yd. capacity were moved from one borrow pit to another as the character of the fill changed—much as a master chess player would maneuver his pieces for best advantage.

Daily lubrication played an important part in keeping the 16 bottom-dump (rated at 13.0 cu.yd., actually carried 14½ cu.yd.) and 22 end-dump (rated at 9.7 cu.yd. but carried 12½ cu.yd.) earth movers running. As a further step in the "keep 'em rolling" campaign, the contractor had two extra 150-hp. diesel engines for the trucks. The schedule was a complete engine overhaul each 1,000 hours with immediate replacement by a newly rebuilt engine.

It was possible to use all of these trucks as well as other equipment to spread, mix, sprinkle and compact the fill because of the relatively large work area available. Other factors included: material in one of the three zones did not require compaction and could be spread in 2-ft. layers also aided the fast work; stockpiles of processed materials that supplied the bulk of the embankment were well located.

Power plant only major work left

Completion of the fill marks the end of the third stage of Davis Dam construction. First stage involved the excavation of the diversion and forebay channel. Rock from this excavation was screened and stockpiled for later use as semi-pervious and pervious fill on the dam. Second stage included foundation grouting and the concrete work on the spillway and intake structures up to diversion level. (Work on higher levels of these structures is still going on and is about 95 percent complete.) Third stage involved diversion of the river, excavating the cutoff trench, and placing the fill. This was completed in April, 1949—more than three months ahead of schedule.

The fourth and final stage will be building the powerhouse (now 20 percent complete) due for completion early in 1950, with first power delivered in the summer of 1950. All five of the 45,000-kw. generators are expected to be in operation by June, 1951.

The Davis Dam fill consists of three general classes of material. Impervious material (Zone 1) of selected sand, clay and gravel is used to fill the 50-ft. deep cutoff trench and extends to the top of the dam occupying the central portion. A blanket of this material covers the river bed upstream to the cofferdam.

On each side of this impervious material is semi-pervious material (Zone 2), consisting of rock screenings (less than 4 in.) from the diversion canal excavation. Zone 3 includes larger rock from the screening operation placed on both the upstream and downstream side of the Zone 2 material. This rock is graduated from relatively fine material adjacent to Zone 2 to coarse material at the outer slopes. The upper 78 ft. of the upstream slope is covered with a 6-ft. thickness of riprap.

Dewatering problems

First step after diversion of the river was dewatering of the area inside the cofferdams. One set of four 10-in. pumps operated from the downstream cofferdam and a second set of eight was placed on a wooden barge to operate in the deepest section between cofferdams. The first set pumped for 110 hours and the second for 72 hours, pumping out about 600 acre-ft. of water.

Immediately thereafter, installation of well-points began. More than 2,400 J. W. Stang Corp. well-points were installed in the dam foundation. An additional 900 well-points were used to dewater the tailrace area.

First well-points were placed on the downstream toe of the main cofferdam to stop seepage. Then, as the 450,000-cu.yd. cutoff trench excavation was made, additional well-points were installed. Most of the well-points were sunk by the sand casing method that involves the jetting down of a casing, inserting the well point and sand and, finally, removal of the casing. In some areas where clay was encountered these casings were driven by a steam hammer.

Servicing the well-points in the cutoff trench excavation were 22 10-in. pumps and 5 8-in. pumps. Total pumping capacity was in excess of 60,000 gpm. However, all well-points were not drawing full head at all times and so maximum pumping rate was about 12,000 gpm.

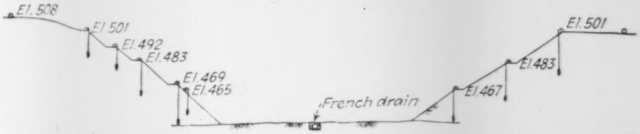
Water was pumped from each of the well-point headers to main headers on each side of the cutoff trench excavation. These 24- and 30-in. lines were situated at 508-ft. elevation on the upstream side and 501 ft. on the downstream side, joined in a 36-in. pipe that led through the upstream cofferdam. The highest point in the discharge line was at El. 548 with the discharge at El. 535 ft. Thus, water was lifted from below the bottom of the cutoff trench (El. 455 ft.), almost 100 ft.

Even with all these dewatering facilities, it was not possible to completely dry the cutoff trench. Since the trench was 120 ft. wide at the bottom and the well-point headers were located along each side, it was not feasible for the pumps to draw water from the center of the trench. To remedy this situation, a trench was dug down the center line of the excavation and a French drain installed. This consisted of a 16-in. pipe with $\frac{1}{2}$ x 6-in. slots cut out. The pipe was backfilled with $1\frac{1}{2}$- to $2\frac{1}{2}$-in. gravel, serviced by two 10-in. pumps with two 8-in. pumps standing by for emergency service.

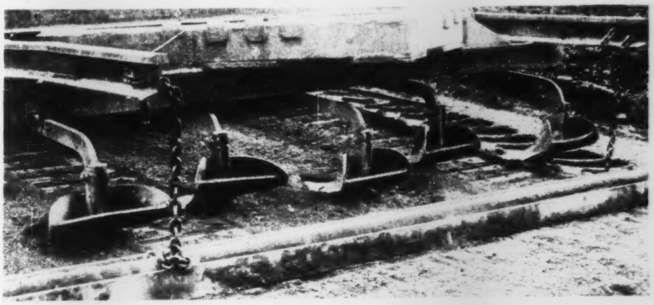
Similar French drains, of 6-in. pipe, were installed on the side slopes just downstream from the center line of the concrete cutoff walls that were constructed along both the Arizona and Nevada abutments but not across the bottom of the cutoff trench.

Connected to the drain at 50-ft. intervals were 2-in. grout pipes, running up the side slopes to the top of the cutoff trench excavation. After

FILL WAS PLACED in the cutoff trench and, as the height increased, well-points were pulled. Almost the entire trench was filled with impervious material.



FIVE WELL-POINT HEADERS were used on the upstream side of the cutoff trench. Water from these plus water from three downstream headers was pumped to a discharge at El. 535 with the maximum height of the discharge lime at El. 548.



THIS GANG PLOW with a steel rail drag pulled by a tractor was used to work moisture into the fill. Elevation of the plough shares is controlled by the tractor winch.

fill had been placed to this level, these pipes were used to grout the drain—grout completely filling the pipe and flowing into the voids in the surrounding gravel.

A special grout mixture of one sack of bentonite to three sacks of cement to 9½ cu.ft. of sand to 10 cu.ft. of water was used. Bentonite, an aluminum silicate, has the property of swelling when mixed with water—absorbing as much as five times its own weight in water. Some 2,600 cu.ft. of grout was used to seal the drains.

Impervious fill compaction

Major problem in placing the impervious fill was establishing the proper water content. Bureau of Reclamation engineers estimated that to obtain the maximum practical density with the material at hand, the moisture content should be 12 percent by weight.

The contractor first tried wetting the fill material by installing a large sprinkler system at the borrow area 3½ miles from the dam. This involved construction of a 2-mile-long, 8-in. pipe with pumps capable of raising 450 gpm. 500 ft. in elevation. By sprinkling a two-acre area for about five days with this water, the contractor hoped to wet the borrow material to the full depth of a cut (some 20 ft.). However, this system was not workable because the water did not penetrate the undisturbed material more than 1 or 2 ft. As an alternate, the contractor stationed a man with a fire hose on the top of the cut to wet the borrow material just before and as it was loaded into the earth-moving vehicles. Additional moisture at the fill area was provided by two 5,000-gal. and one 5,500-gal. tank trucks.

Working this moisture evenly into the 8-in. layers required several pieces of equipment. Best of these was a tractor-hauled gang plow. Elevation of the plough shares was controlled by the tractor winch. Tractor-hauled harrows and motor graders were also used to process the fill.

After the proper moisture content had been obtained, compaction was accomplished by sheeps foot rollers built to Bureau of Reclamation standards. Twelve passes by these rollers were found to compact the 8-in. layers to a 6-in. thickness at the maximum practical density.

The semi-pervious material was laid in 14-in. layers and after sprinkling was compacted to 12-in. layers by eight passes of the rollers. This material was obtained in the process of the forebay and diversion canal construction, screened to 4-in. maximum size and stockpiled for fill purposes.

Zone 3 material was dumped in 2- to 3-ft. layers and leveled by bulldozer-equipped tractors.

The material locally available for riprap was badly jointed and broke up easily, so it was necessary to develop a borrow area 7 miles downstream where a fine grained igneous rock was found. Maximum size of riprap was 1 cu.yd. boulders.

Controlling the fill

To check the fill material density during day-by-day operations, field tests were made for comparison with the laboratory standard. This test involves a unit dry weight determination for the compacted fill material. The USBR laboratory standard is a modified Proctor test in which the 5.5-lb. hammer is dropped 18 in. instead of 12 in. The borrow material varied somewhat but the average optimum moisture content was 12 percent.

Because of the high unit pressure exerted by the heavy rollers, optimum moisture content for twelve roller passes was about one percent lower than the laboratory optimum. Thus, the field moisture was held from one to two percent below laboratory optimum to attain maximum field density and halt excessive pore pressures.

The needle-moisture tests were used in the field prior to rolling a new lift. Needle-density tests were made on about 50-ft. centers immediately after compaction. Whenever this latter test indicated probable low fill density, a field density test was made.

Table I—Davis Dam—Fill Dimensions

Structural height	200 ft.
Hydraulic height	138 ft.
*Base width	1,400 ft.
Crest width	50 ft.
Cutoff trench width	120 ft.
Elevation of crest	655 ft.
Zone - (impervious) fill	1,000,000 cu.yd.
Zone 2 (rock screenings) fill	980,000 cu.yd.
Zone 3 (rock) fill	1,600,000 cu.yd.

* At original river bottom

Prior Engineering News-Record Articles on Davis Dam

Davis Dam Scheduled for 1949 Completion—ENR Aug. 22, 1946, vol. p. 230
Davis Dam Structures Revised to Cope With Bad Rock Conditions—ENR June 12, 1947, vol. p. 948
Shade-Shed for Cool Aggregate—ENR Oct. 2, 1947, vol. p. 449
Rock Fill Diverts River at Davis Dam—ENR Aug. 5, 1948, p. 70
Admixture Combats Alkali Reaction in Davis Dam Concrete
  Part I, Mixing and Placing—ENR Jan. 20, 1949, p. 83
  Part II, Siliceous Admixture Selection—ENR Feb. 3, 1949, p. 62

Other laboratory work included percolation-consolidation tests. Average percolation rate of the impervious materials was less than ½ ft. per year.

Data collected

Two interesting installations were made to gather data on the fill as a guide for future earth-fill dam design. The first involved three settlement measuring devices. Crossarms 3 ft. long made of 3-in. channels were both bolted and welded at right angles to 3-ft. sections of 1½-in. pipe. The 1½-in. pipe was then loosely inserted in a 2-in. pipe. The joint was then packed with oakum to seal it and still permit the smaller pipe to slip inside. Another 4-ft. section of 2-in. pipe was placed on top of the 1½-in. pipe and the process repeated with crossarms about 5 ft. apart vertically.

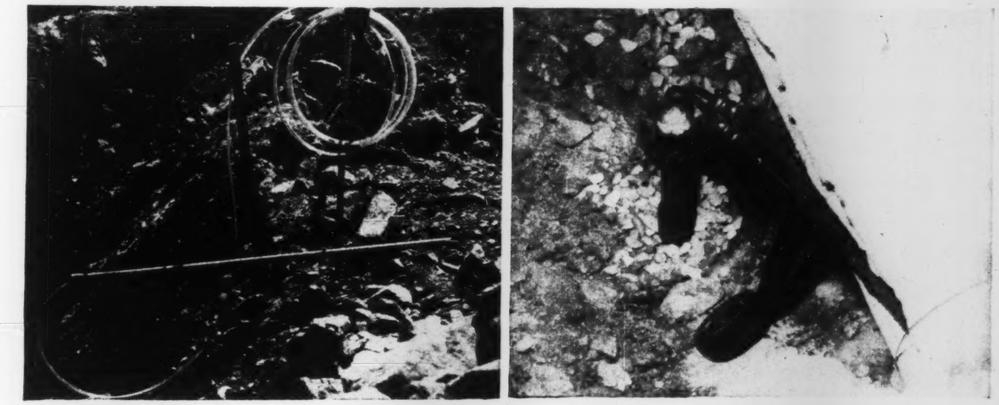
Position of the bottom of the 1½-in. sections is measured by a torpedo with retractable fins. The torpedo is lowered through one of the 1½-in. pipe sections into a 2-in. section and, as it is pulled up, the fins come to rest on the bottom of the 1½-in. section. The steel tape by which the torpedo is suspended then indicates the position of the crossarm attached to the 1½-in. pipe section in question. After location of all crossarms in one installation has been determined, the torpedo is allowed to drop gently to the bottom and a mechanism trips the fins, permitting withdrawal of the torpedo. At one installation where the total depth of fill was 180 ft., the total consolidation when the embankment was completed was measured to be 2. 6 ft.

To measure the pore pressure in the dam at various locations, 65 piezometers were installed. These piezometers have a 1-in. dia. round plastic head in which a small porous stone is placed. These heads are attached to two ¼-in. dia. plastic tubes. A set of two such tubes runs from each piezometer to a well located at the downstream toe of the dam. In this well are placed gages so the pressure at each piezometer can be measured. Two tubes are necessary so that each individual piezometer system can be flushed out to remove air bubbles that might affect the pressure readings.

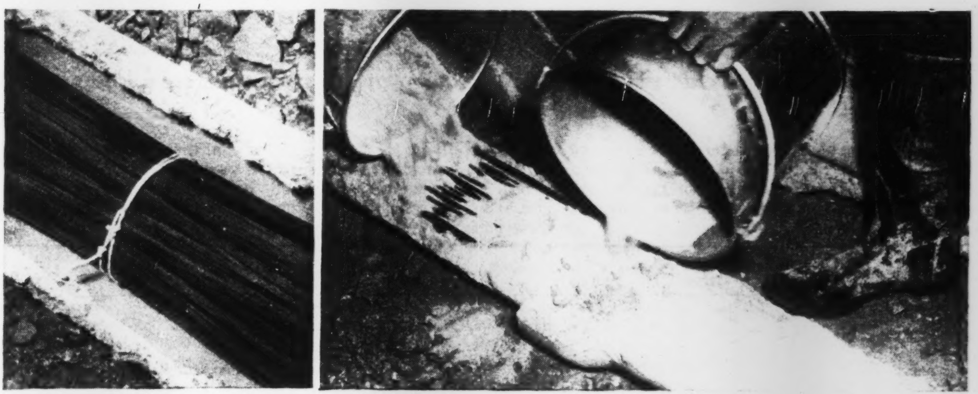
Davis Dam is a project of the U. S. Bureau of Reclamation, L. N. McClellan chief engineer. E. A. Moritz is regional director at Boulder City, Nev., and H. F. Bahmeier is construction engineer on the job.

The project is being constructed by a joint venture headed by the Utah Construction Co., for whom H. E. Williams is project manager and T. L. Terry is general superintendent.

Installing Davis Dam Piezometers



Pairs of 1/4-in. plastic tubes leading from Davis Dam piezometers . . .



. . . are laid in split tile and sand encased

. . . with many tubes leading to gages in terminal well.

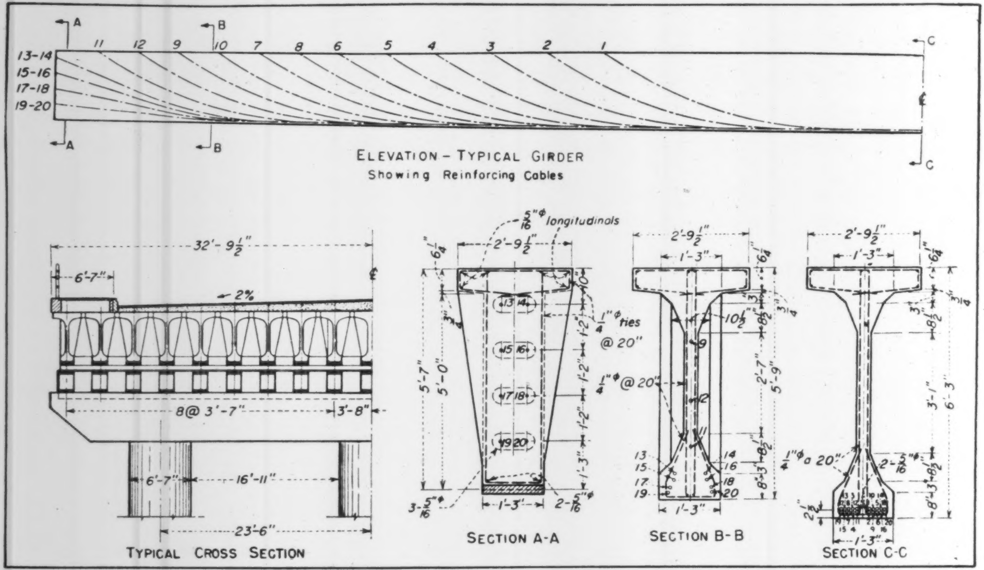
Brazilians Build

Hollow piers, sunk and capped . . .

Carry prestressed concrete girders . . .

HALF-FINISHED—but opened for traffic —Galeao Bridge in the harbor of Rio de Janeiro is Brazil's contribution to the science of prestressed concrete. The crossing, now carrying three 8.8-ft. lanes, ties Ilha do Govenador (Governor's Island), site of the city's major airport, to a smaller island 1,215 ft. away, already connected by bridge to the mainland.

When finished, the roadway will have six 8.8-ft. lanes flanked by two


A
B
C
11 12 9 10 7 8 6 5 4 3 2 1
13-14
15-16
17-18
19-20
℄
ELEVATION – TYPICAL GIRDER
Showing Reinforcing Cables
32'-9½"
6'-7"
2%
8@ 3'-7"
3'-8"
6'-7"
16'-11"
23'-6"
TYPICAL CROSS SECTION
5/16"ϕ longitudinals
2'-9½"
6¼"
10"
¼"ϕ ties @ 20"
¼"ϕ @ 20"
5'-7"
5'-0"
1'-2"
1'-3"
3-5/16"ϕ
1'-3"
2-5/16"ϕ
SECTION A-A
2'-9½"
1'-3"
10½"
2'-7"
5'-9"
8¼"
SECTION B-B
2'-9½"
1'-3"
3'-1"
6'-3"
¼"ϕ a 20"
2-5/16"ϕ
SECTION C-C

PRESTRESSED REINFORCING curves upward to be anchored along the top and end of the girder. Cross-sections shown here are taken of the center span girders, all others have constant depth.

A 15-Span Prestressed Concrete Bridge

Ten abreast on the half-finished . . .

. . . Galeao Bridge in Rio de Janeiro.

6½-ft. walks, and its total width will be 65.6 ft. It is built on a slight vertical curve, with a maximum grade of three percent.

The bridge is divided into 15 simply-supported girder spans. The longest is 142½ ft.; two are 122½ ft., two 92½ ft., and the remaining ten each 63½ ft. Each span contains (or will contain when finished) 19 prestressed girders, 3 ft. 8 in. c. to c.

Girders have constant depth—except in the 142½-ft. center span—where they are 5 ft. 7 in. deep at the ends and 6 ft. 3 in. at the center. The shortest girders are 3-ft. 1-in. deep.

In cross-section, they have a modified I shape. Web thickness varies in each member, being greatest at the ends and a minimum at the center. For example, the webs of the center-span girders change in thickness from nearly 18 in. at the piers to about 4 in. at mid-span. In so changing in thickness, the web of an I-section at mid-span becomes the rather thick stem of a T-section at either end. Also, web stiffeners are spaced each 20 ft. or so along the girders.

Prestressing of concrete was done with cables made up of 12 strands of ⅜-in. dia. wire, spun around a central core and inclosed in tar paper. Hydraulic jacks and patented anchorages were used in accord with the Freyssinet method of prestressing (ENR Sept. 16, 1948, p. 104, and April 5, 1945, vol. p. 455), by agreement with the Societé Technique pour l'Utilisation de la Precontrainte, of Paris.

The reinforcing cables are placed in each girder so as to follow parabolic curves. In each center-span girder, for instance, there are 20 cables, which are located in the base of the bottom flange at mid-span, but which curve upward from there, one by one, to be anchored at successive points along the top of the girder. At the supports only eight cables remain in the section, and these are anchored in the girder ends.

Design load for the bridge (specified by Brazilian engineers) was that imposed by five 16-ton compressors and five 9-ton trucks in each of two lanes, plus a 92.5-psf. live load over the remaining width.

Working stresses used were 1,700 psi. for concrete and 120,895 psi. for steel. Concrete was vibrated and had a 90-day test strength of 6,400 psi. The steel had an elastic limit of 150,000 psi. and a tensile strength of 225,000 psi.

The bridge is supported on bents consisting of three 6-ft. 7-in. dia. hollow, concrete piers capped with a reinforced concrete cross beam 33 ft. long, 3 ft. 7 in. wide and from 3 ft. 3 in. to 4 ft. 11 in. deep. Sunk to rock by the pneumatic method, the piers vary in height from 33 to 46 ft.

No heavy floor slabs were required to support the roadway, since girder flanges are wide enough to nearly touch. A layer of concrete was cast to protect the girders, then asphalt surfacing was placed on top.

Construction of the bridge was authorized by the Aeronautics Ministry (Galeao Airport is on Governor's Island). The contractor is Companhia Nacional de Construcoes Civis e Hidraulicas, of Rio de Janeiro.

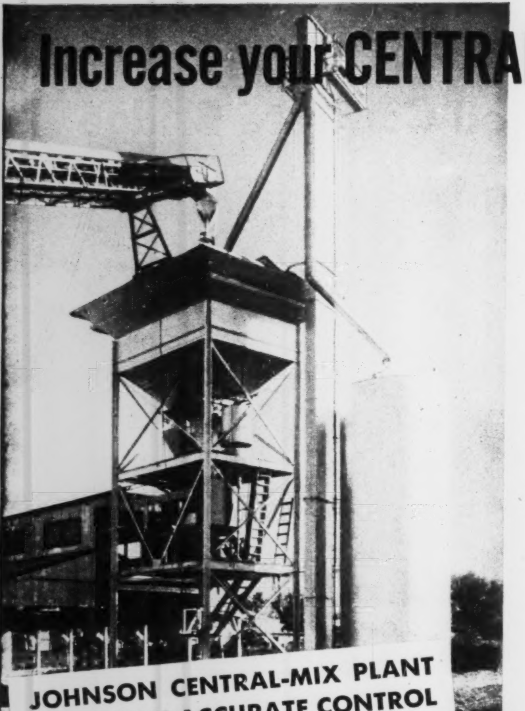
Pamphlet Aids Work Of Pollution Control

In an attempt to aid municipalities both in selling their needs for control of stream pollution and in planning the necessary works, the Interstate Commission on the Potomac River Basin has issued an illustrated pamphlet.

Profusely illustrated with cartoons, and purposely written in laymen's language, the pamphlet undertakes to outline the problems, and tells why and how to solve them.

It contains considerable information on the set-up of genreal type sewage disposal and treatment plants, and a lengthy glossary of articles designed to assist municipal authorities in preparing financing for such projects. The pamphlet is available at the commission's office at 202 Transportation Building, Washington 6, D. C.

Increase your CENTRAL-MIX PLANT earnings



TO PROVIDE you with the most economical production of concrete, Johnson offers you today's widest selection of portable and stationary plants, all types, sizes and styles . . . engineered to *your exact requirements.* One typical example is the flexible Johnson Central-Mix plant illustrated here with Step-by-Step Bin. Also available are Johnson Octo-Bin plants that can be used with as many as 8 aggregate compartments, 150 to 3,000 yds. overhead storage, and 150 to 1350 bbl. capacities in central cement tank. Ask too, about Johnson Portable-Section, Welded Aggregate and Cement Bins for crane, elevator or conveyor charging.

Over 100,000,000 cu. yds. of concrete have been poured by Johnson-engineered Central-Mix Plants. This practical experience can save you time, money and increase your profits. Whenever you are ready to modernize your present plant or plan for new Central-Mix, Transit-Mix or Concrete Products facilities, it will pay you to write us, or call your local Johnson distributor.

JOHNSON CENTRAL-MIX PLANT GIVES YOU ACCURATE CONTROL . . . LOW-COST PRODUCTION:

❶ This 120 cu. yd. Step-by-Step Bin is arranged for 4 aggregate compartments of 25 cu. yds. each, and has a centrally-located cement tank of 110 bbls. capacity.

❷ Concentric aggregate and cement batcher, of 2 cu. yd. capacity, handles all 4 aggregates and the cement. (See photo on opposite page.)

❸ Pivoted distributor, mounted at top of bin, feeds aggregates into any of the 4 compartments.

❹ Charging chute can load dry-batch mix direct into trucks.

❺ Cement bucket elevator has capacity of 300 bbl. per hour.

❻ Single-compartment storage silo holds 945 bbls. of cement.

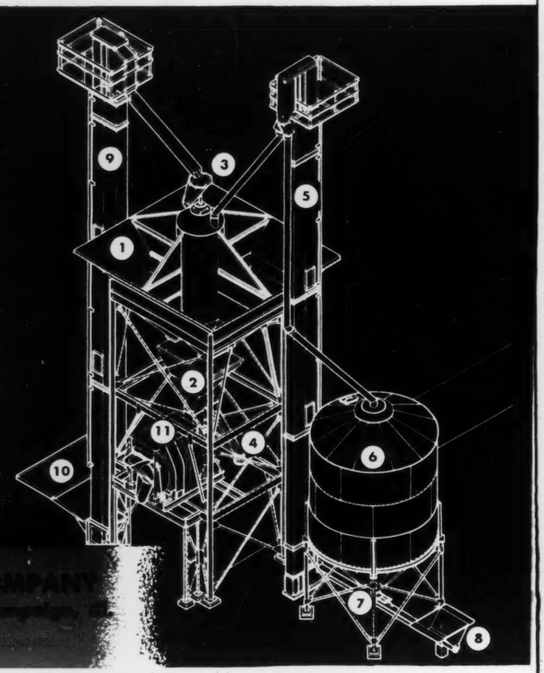
❼ Screw-type cement conveyor has approximately 300 bbl. per hour capacity.

❽ Hopper for receiving bag cement.

❾ Aggregate bucket elevator.

❿ Hopper for receiving aggregates from trucks.

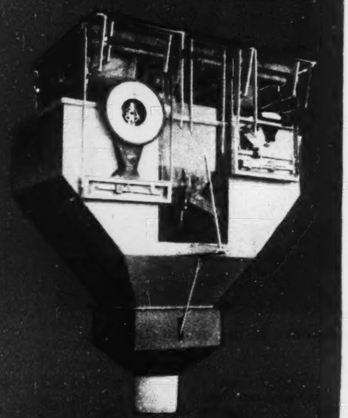
⓫ Heavy-duty, non-tilting Koehring mixer, model 56-S, for accurate quality and high-speed mixing.



KOEHRING PRODUCT

C. S. JOHNSON COMPANY
Champaign, Ill.
(Koehring Subsidiary)

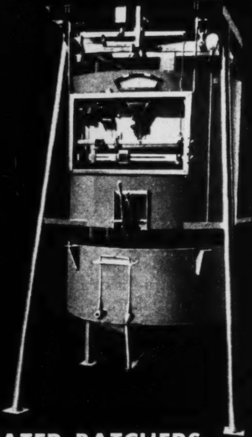
with JOHNSON



CONCENTRIC BATCHER

Prevents Cement Loss

[illegible] Johnson Concentric Aggregate-Cement Batcher gives you [illegible] cement loss. Wasteful cement "gumming" is prevented by concentric arrangement of aggregates around the cement batcher discharge. Cement is also weighed on separate scale. Aggregates are weighed on individual beam scales, or cumulative dial scale. Result: you get extremely accurate control and the most efficient use of materials . . . at high batching speeds.



WATER BATCHERS

Improve Concrete Quality

Here's another handy auxiliary unit that can help increase your mix plant efficiency — Johnson Water Weigh-Batchers. Capacities: 120 gallons or 1,000 lbs. for batches up to 2 yards . . . and 240 gallons or 2,000 lbs. for batches up to 5 yards. Semi- and full-automatic types. They're fast-weighing . . . accuracy is not affected by changes in water temperatures.

HIGH-SPEED, RUBBER-TIRED

TRENCHMOBILE

Gives you 18.5 m.p.h. job-to-job speeds . . . digs 13.22 ft. per min., up to 4 ft. deep, 5" and 7½" wide . . . provides fast new method of handling off-street connections and other small trenching jobs. Ask your local Parsons distributor about this mobile, utility-size Model 80 Trenchmobile . . . or write us direct about the savings it offers on your work.

PARSONS COMPANY
Newton, Iowa
(Koehring Subsidiary)

LOW-COST, FULLY-POWERED

MOTO-BUG

On your wheelbarrow work, there's no pushing . . . no pulling with Kwik-Mix *fully-powered* Moto-Bug. Travels 1½ to 4 m.p.h., forward *and reverse.* Has positive, direct steer; *standard make* 4 h. p. air-cooled gasoline engine; 10 cu. ft. bucket; controlled gravity dump. 1200 lb. capacity flat-bed platform, and operator riding step also available.

KWIK-MIX COMPANY
Port Washington, Wis.
(Koehring Subsidiary)

HEAVY-DUTY HALF-YARD

KOEHRING 205

For top performance in the ½-yd. excavator class, check Koehring 205's independent traction, self-adjusting main clutches, simple, heavy-duty construction . . . quick convertibility from ½-yd. shovel or pull shovel to 7¾-ton crane, clamshell, dragline, on crawlers or rubber-tires. See your Koehring distributor, or send for big 28-page catalog.

KOEHRING COMPANY
Milwaukee 10, Wis.

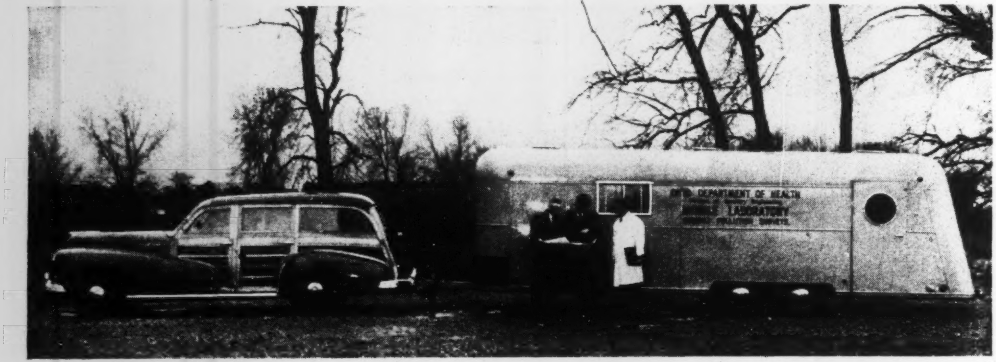

OHIO DEPARTMENT OF HEALTH
MOBILE LABORATORY

FIG. 1. **LARGE INCUBATORS** and refrigerators, and ample storage and working space are provided in the mobile laboratory.

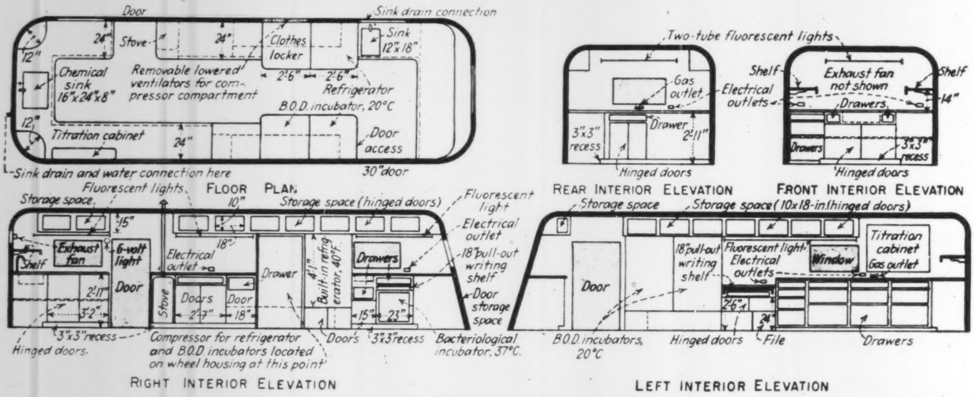

Door
Sink drain connection
24"
Stove
24"
Clothes locker
Sink 12"x18"
12"
Chemical sink 16"x24"x8"
Removable lowered ventilators for compressor compartment
2'6"
2'6"
Refrigerator
B.O.D. incubator, 20°C
12"
Titration cabinet
24"
Door access
Sink drain and water connection here
30"door
FLOOR PLAN
Fluorescent lights
Storage space
10"
Storage space (hinged doors)
Fluorescent light
15"
Electrical outlet
18"
Exhaust fan
6-volt light
Shelf
Electrical outlet
Drawer
4'1"
Built-in refrigerator, 40°F.
Drawers
18" pull-out writing shelf
Door
2'11"
3'2"
Stove
Doors
Door
2'7"
18"
15"
23"
Door storage space
3"x3"recess
Hinged doors.
Compressor for refrigerator and B.O.D. incubators located on wheel housing at this point
Doors
3"x3"recess
Bacteriological incubator, 37°C.
RIGHT INTERIOR ELEVATION
Two-tube fluorescent lights
Gas outlet
Electrical outlets
Shelf
Exhaust fan not shown
Shelf
14"
Drawers
Drawer
2'11"
3"x3" recess
Drawers
3"x3" recess
Hinged doors
Hinged doors
REAR INTERIOR ELEVATION
FRONT INTERIOR ELEVATION
Storage space
Storage space (10x18-in.(hinged doors)
18" pull-out writing shelf
Fluorescent light
Electrical outlets
Window
Titration cabinet
Gas outlet
Door
2'6"
24"
B.O.D. incubators, 20°C
Hinged doors
File
Drawers
LEFT INTERIOR ELEVATION

FIG. 2. **ON-THE-SPOT COLLECTION** of stream-pollution data is made possible by Ohio's new mobile laboratory. (Ohio Division of Conservation (Lauffer) photos)

Mobile Lab Aids Stream Studies

A Well-Equipped Mobile Laboratory for stream-pollution control has been placed in service by Ohio's Division of Sanitary Engineering. The laboratory is being used for on-the-spot-collection of data on pollution conditions throughout the state, in connection with new responsibilities under the Ohio River Valley Water Sanitation Compact.

Designed by the sanitary engineering staff under the supervision of F. H. Waring, chief engineer, and M. L. Riehl, chief chemist, the laboratory is completely contained in a 25-ft. trailer. A station wagon, which also serves for collection of samples and transportation of personnel, provides motive power.

Planned for the analysis of river water, municipal sewage and industrial wastes (as well as a combination of all three) the laboratory is equipped to make chemical, bacteriological and biological examinations. Equipment for these tests ranges from delicate scales for weighing substances within 0.0000002 lb. (2 ten-millionths of a refrigerators required to maintain exact temperature control for bacteriological and biological tests.

Provisions are made for quick connection to local water and electric services. However, a 30-gal. water pressure tank is included as a permanent feature permitting independent operation for a limited period.

The value of mobile laboratories (ENR June 20, 1940, vol. p. 859) for pollution studies was demonstrated some years ago by the U. S. Public Health Service in its work on the Ohio River, by the Tennessee Valley Authority, and more recently by the Corps of Engineers in making sanitary surveys at Army installations.

The Ohio laboratory represents a refinement of these earlier designs and is believed to be the only mobile unit operated by a state health department. At present the laboratory has been assigned to work on the Miami River, one of the major streams in Ohio. Factual evidence of the sanitary condition of the river and corrective measures required for sewage and industrial waste treatment will be sought.

The laboratory will be operated under the supervision of B. M. McDill, engineer, stream pollution unit. On-the-spot studies will be made by George Manos, chemist-in-charge.

The trailer laboratory was constructed by John J. Mohler and Associates, of Peoria, Ill.

PRINCIPAL LABORATORY EQUIPMENT FOR MOBILE UNIT

Analytical Balance (with magnetic damper & vibradamp)
Beckman pH meter
Vacuum and compression pump (¼-hp. motor)
Triple beam balance
Muffle Furnace
Drying oven
Twin-burner hot plate
Two one-burner hot plates
Lindbergh hot plate (thermostatically controlled)
Sterilizing oven
Autoclave (small)
Demineralizer
Kjeldahl digestion unit (two flasks)
Phenol stills—five unit
Hellige Comparator (for nitrogens, chlorine, iron and pH)
288-300 ml BOD. bottles
Two dessicators

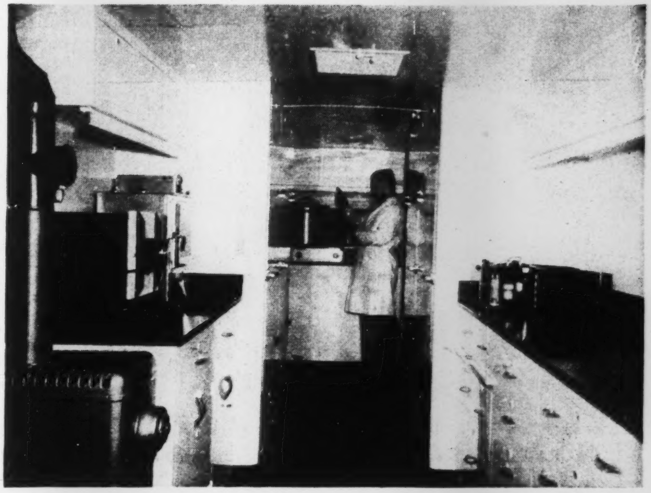


FIG. 3. COMPLETE EQUIPMENT for chemical, bacteriological and biological examinations is almost within arm's reach in this 25-ft. trailer laboratory.

MINIMUM SPECIFICATIONS FOR TRAILER LABORATORY DIVISION OF SANITARY ENGINEERING, OHIO DEPARTMENT OF HEALTH

Body: Inside dimensions—23.5 ft. long x 7.5 ft. wide x 6.5 ft. high; rigid frame of straight-grained hardwood; frame joints mortised, glued and screwed; exterior—0.04-in. aluminum sheets with ¾-in. overlapped screwed joints, aluminum molding over joints; exterior finish—one coat of zinc chromate primer, two coats of sanding surfacer and two coats of synthetic light tan enamel.

Floor: ¾-in. 7-ply waterproof plywood; floors—extra quality inlaid linoleum cemented in place, rubber covers in toe space under cabinets; undersurface of trailer covered with 1-in. insulating board with exposed moisture-proof surface and coated with ¼-in. of asphaltic waterproofing and insulating material.

Chassis: Frame—truss-type, welded-steel channels and angles; design load—8,000 lb.; 2-in. axles in tandem of double-drop forged steel; truck-style wheels with 7.50 x 16 heavy-transport, eight-ply trailer tires mounted on 5½-in. rims; brakes with 1¾-in. drum width, electric type on all four wheels; hitch—Marvel type, fully inclosed worm, with Nelson Dolly, or equal.

Interior Finish: ¾-in. birch plywood on level surfaces and ⅛-in. birch plywood or sheet aluminum on curved surfaces; molding over exposed joints, two coats of white primer and two coats of white enamel; two outside doors on opposite sides of trailer; push-out windows with aluminum frames and screens and steel venetian blinds.

Heating, Ventilation and Insulation: Oil heater with circulating fan, duct work, thermostat and flue vent; three screened roof ventilators; 300-cfm. exhaust fan; roof, sides and ends of trailer insulated with pressed glass or Kimsul.

Wiring: Reference Specifications—1940 National Electric Code; a four-circuit fuse box or multibreaker for 110-120 v. service; two-100-ft. rubber coated heavy-duty connecting cords for 60 amp.; four separate 15-amp. fused electric circuits; incubators and refrigerators, lights, duplex outlets on each side of trailer, and duplex outlet over work table adjacent to stove carrying muffle furnace and drying oven.

Lighting: Fluorescent lights; emergency 6-v circuit with one light.

Gas: Outside mounting for two 25-lb. artificial gas cylinders, ⅜-in. gas line from cylinders to double outlets on work tables; regulator with dual flexible connection; (gas equipment is mounted in fireproof compartment in rear of trailer).

Safety: Tail, stop, clearance, marker lights and reflectors; direction of turn indicators; warning lanterns, flares and fuses; fire extinguishers—one carbon dioxide Class B unit, and one Class A1 type, protected against freezing.

Plumbing: Chemical sink in 1-in. wood covered with ⅛-in. tellurium sheet lead with burned joints and seams of pure lead, or, as alternate Kemrock sink; drain and connections for sink of corrosion resistant material such as monel metal or equal; small sink in rear, stainless steel, commercial type; water storage, 30 gal.; water piping and storage tank, equipped with necessary appurtenances—air valve, hand pump and valves—for use of system with or without outside water pressure; 100-ft. ¾-in. high pressure hose with suitable couplings for water supply connection; two 50-ft. lengths of 1-in. hose with suitable connections for conveying wastes.

Built-in Equipment: Cabinets, drawers, cupboards and storage space of lightweight, durable, ½-in. birch plywood; chrome-plated hardware and locks with three master keys; electric refrigerator with open-type mechanism; the 37-deg. C. incubator equipped with auxiliary 6-v. circuit, 150-w. resistance heater, thermostatically controlled; titration cabinet with 6-15 ml. automatic burettes, complete, with auxiliary compartment for supplies, built-in fluorescent light, sliding roll-front door and other normal appurtenances; one-inch table tops of material resistance to strong chemicals; rubber cove, 4-in. high, at rear of all table tops.

Miscellaneous: One spare tire and tube mounted on wheel; one spare tire and tube mounted on wheel for dolly; four leveling jacks for parked use.

ANGOSTURA DAM in Sonora, where a highly efficient low-heat cement (low in alkali, high in silicates) was first used in 1937.

Prescription for Efficient Cements For Mexican Reclamation Work

Federico Barona de la O
Chief, Department of Materials
Ministry of Hydraulic Resources
Mexico City

FOR THE PAST 23 YEARS, since the National Irrigation Commission of Mexico (now the Ministry of Hydraulic Resources) was formed, continuous efforts have been made to improve the quality of the cement required for reclamation structures. Progress has been made on each successive dam—Rodriguez, Angostura, las Virgeres, Lazaro Cardenas, Marte Gomez—and finally with the lining of Valsequillo tunnel in 1946. Out of this long experience a prescription for efficient cements has been developed:

1) Add iron ore or iron slag to raw mix to reduce tricalcium aluminate in clinker to not more than 8 percent; preferably not more than 6 percent. The iron ore addition will also help to get a more thorough burning.

2) If the silica/alumina ratio of the raw mix in less than 3.75, add some siliceous material-quartz or sand. The sum of both silicates (di-and tricalcium) shall not be less than 72 percent, preferably not less than 74 percent.

3) Burn thoroughly, keep free lime below 2 percent; preferably below 1.5 percent.

4) Control the lime content of the raw mix according to whether the sections are large and thus require a low-heat cement (tricalcium silicate not higher than 30 percent.) Otherwise secure an efficient modified-type cement by keeping the tricalcium silicate at 45 to 55 percent.

5) Keep alkalies at the lowest possible amount—not higher than 0.8 percent in all cases, and not higher than 0.6 percent when there is any suspicion that the aggregates may react with the alkalis; or use a pozzolanic additive to counteract such reaction. Hydrated silica, such as opal or volcanic glass, are reactive minerals; when their presence in the aggregates is detected, make expansion tests.

6) Use a puzzolana addition to counteract alkali reaction. Sands, from which fines (particles under 50 mesh) have been removed, have shown in our sealed container bar tests higher expansions than the same sands with their fines kept. Thus a good correction is to intergrind with the clinker, 5 to 10 percent of the same sand to be used in concrete, or to resort to a puzzolana of proven activity to be ground with the clinker in a 15-20 percent proportion.

7) When portland-puzzolana cement is to be made:

a) Use clinker of high tricalcium silicate content—not lower than 45 percent; preferably 50-55 percent.

b) Don't add more than 20 percent puzzolana to 80 percent clinker, except by special approval, based on previous tests, in cases where the portland-puzzolanic cement is to be used to produce lean low-strength concrete.

c) Grind finely; finished cement shall have not less than 3400 sq. cm/g by Blaine air permeameter.

8) Control gypsum addition, taking into account that the finer the cement and the higher its tricalcium aluminate and alkalies, the higher the gypsum required. By the water extraction test, SO_3 at 18 hr. should not be less than 0.2 g/liter, while at 24 hr. it should not exceed that same value.

9) Grind cement finely. In Mexico, where power and grinding equipment are scarcer than in the U. S. A., grinding is carried in general to a lesser degree, but during the last 2 years the average specific surface (Wagner) of Mexican cements has increased from 1400 to 1600 sq. cm./g. and some plants are grinding much finer than the average (about 1800 sq. cm./g.) The use of grinding aids and the cooling of the mills by spraying water on the outside shell by a pipe parallel to the axis of the mill are advised to secure higher specific surface.

10) Provide silos with horizontal sampling pipes at each 10 ft. of height in order to be assured of a representative composite sample.

Dial Gage Meter Bar Aids Precision in Map Making

Milton A. Stovall
Mechanical Engineer, Reed Research, Inc.
Washington, D. C.

To improve plotting precision for cartographers, L. M. Samuels of the U. S. Navy Hydrographic Office has invented a meter bar capable of accuracy to two one-thousandths of a millimeter, using a dial gage in combination with the bar. Now proved by use, this scientific instrument today can aid the good estimating eye or the experienced feel of the practitioner.

The standard of length, fundamental in cartography, is still the meter and its decimal subdivisions. Up to the present, methods of handling the physical problem of accurately laying off length on maps have lagged far behind the developed mathematical theories. Until now, cartographers—using trammels or pairs of dividers—have had to estimate their millimeter settings to the nearest one one-tenth for the coordinates of the map plots.

Adaptable to any scale

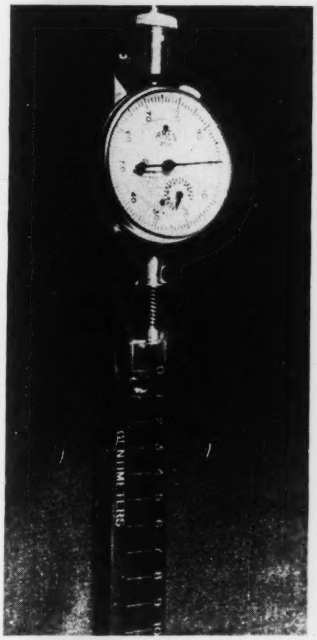
Developed basically for maps and charts up to 50 in., the new bar is actually graduated for 125 cm. Its principle may be adapted to any suitable scale or length required for specified operation.

In the construction of the bar, length stability is achieved by using ¾x1-in. invar stock, ground for true surface and graduated in centimeters from 0 to 125. A V-cut centerline is engraved on the reading surface longitudinally. The centimeter lines are engraved transversely and individually numbered. Centered between 0 and 1, and extending forward to the 0 graduation, a 0.25-in. wide x 0.13-in. deep and 1.69 in. long slot is machined in the bar to slip-fit a slide.

The slide, 0.75 in. long, is rigidly fixed to the rack spindle of the dial gage. Top surfaces of the bar and the slide are in the same horizontal plane, to obviate possible error by vertical displacement when setting the trammels or dividers.

The dial gage, B. C. Ames Co. Model 272M, is graduated into 0.01 mm. and its range is 19 mm. At one end of the dial gage, its rack spindle is fixed to the slide, fitted in the bar slot. Its other end is coupled by a stud screw to the knurled adjusting nut for setting zero on the dial gage.

This assembly of gage, slide, screw, and nut is rigidly attached to the invar bar. The only translatory motion is made by the rack spindle and slide. When the slide is replaced, the gage is simply zeroed for the replacement by resetting of the dial face.



BUILT-IN Dial Gage Vernier gives new meter bar plotting accuracy fifty times that of conventional bar. Large, easily read dial numerals facilitate plotting of topographic and cartographic maps.

Slide is replaceable

A desirable feature of the design allows replacement of the slide when scuffed or worn. As the slide is constantly used in this type of instrument, it wears faster than any other part. A conventional meter bar has to be completely discarded when its vernier end is scuffed and worn by the pin pricks of the dividers or trammels. In the new instrument, the slide alone is inexpensively replaced, and the expensive graduated bar lasts indefinitely.

Errors in settings of trammels or dividers are minimized by the open and easy-to-read face of the dial gage. Setting length by conventional screw motion is a tiring and time-consuming operation; the saving in fatigue and time through use of large, easily-read numerals is obvious. Application of the more efficient meter bar should speed and ease plotting operations in cartography and allied fields.

The author wishes to acknowledge the generous assistance of L. M. Samuels, Chief of Chart Construction, U. S. Navy Hydrographic Office, in the construction of this instrument under Contract N36-12 (19610 P 25.)

Sky Compass Operates Even When Sun Obscures

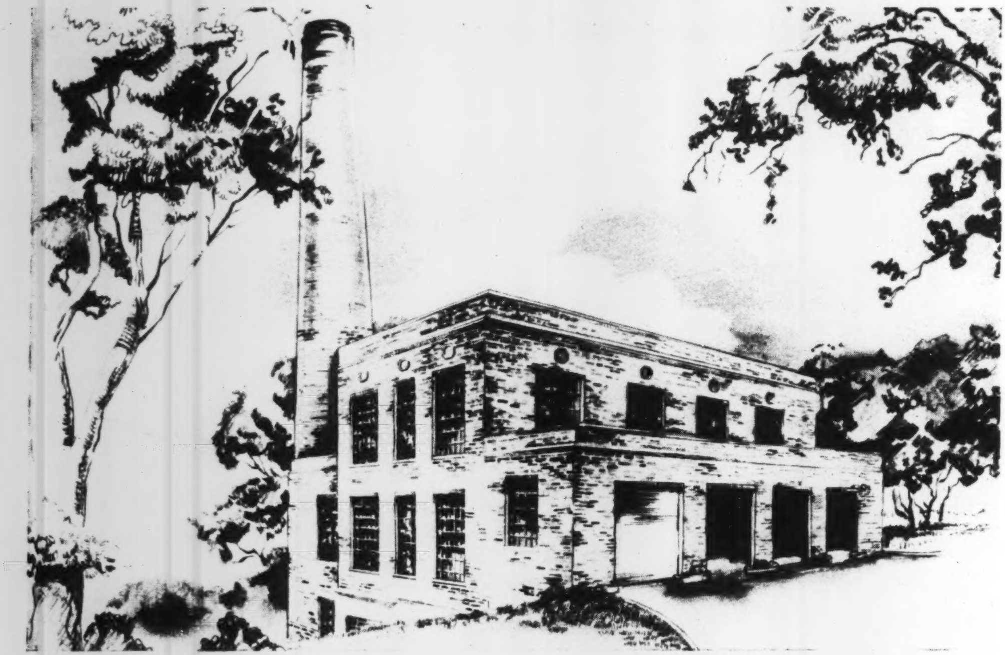
A patch of clear sky may be all that's necessary for azimuth determination with the new Pfund sky compass.

This compass operates on the principle that the light of the sky during the day is partially plane polarized, the polarization being a maximum at right angles to the incident beam from the sun. The plane of polarization at any point in the sky thus contains both the observer and the sun. Establishment of this plane also gives direction since it points to (or away) from the sun.

The principal advantage of the sky compass is that it may be used during twilight, when the sun is several degrees below the horizon, and when the region of the sky containing the sun is overcast—so long as there is a clear patch of sky overhead. Since the extent of polarization of the sky's light is greatest at right angles to the incident beam of sunlight, the compass is most accurate in the polar regions, where it is also most useful because of the long duration of twilight and the weakness and inaccuracy of the magnetic compass at high latitudes.

Essentially, the sky compass consists of an analyzer for determining the plane of polarization of the light; an azimuth circle on which the sun's computed azimuth can be set; and a clock which drives a chosen reference line in synchronization with the sun's apparent motion—that is, one revolution in 24 hours.

The sky compass is based on the investigations made by the late Dr. A. H. Pfund of Johns Hopkins University and is an outgrowth of his twilight sextant. Proposed initially by Comdr. T. S. Davies, U.S.N., the instrument was developed principally by F. Cordero, Drs. D. P. Johnson and S. H. J. Womack of the National Bureau of Standards, Washington 25, D. C.



The Arlington County, (Va.) incinerator, the focus of two recent law suits, provides some important precedents for . . .

Competition, Patents and Bid Evaluation

A VALUABLE INTERPRETATION of crucial factors involved in preparing competitive proposals, in using patented equipment, and in evaluating bids for incinerator projects has been given by the Supreme Court of Appeals of Virginia. This interpretation—which arose in dismissing a writ-of-mandamus petition that would have compelled county officials to reverse their contract award—will be of considerable interest to public officials and engineers because it defines as well as backs up the power of awarding authorities.

Background of suit

Arlington County advertised in June, 1948 for bids on a 300-ton municipal-refuse incinerator. Proposals were based on plans and specifications prepared by Alexander Potter Associates of New York City.

Four bids on hand-stoked incinerators and two on mechanically-stoked plants—alternate designs having been prepared by the engineers to permit proposals on both types—were received on Aug. 24, 1948.

The court action revolved on bids for mechanically-stoked units: $646,757 from the Nichols Engineering and Research Corp. and about $18,000 less from the Morse Boulger Destructor Co., both of New York City.

After a thorough study of tenders, evaluation of designs, contracting experience and guaranteed operating costs, the consulting engineers recommended to the Arlington County Board that the contract be awarded to Nichols. The Board awarded the contract on the basis of the engineer's recommendation as well as an investigation of its own.

The Morse Boulger Destructor Co. then joined with several taxpayers and petitioned the Circuit Court or Arlington County for a writ of mandamus, which, if granted, would have forced the County Board to reverse its contract-award decision. The petition alleged, among other things, that the engineer's evaluation of bids was factually erroneous and arbitrary. The action was later amended to include the charge of fraud.

After an extended trial, the application was dismissed by Justice McCarthy of the Circuit Court. The petitioners then appealed to the highest court in Virginia. The Supreme Court of Appeals has now upheld the Circuit Court ruling.

The high court decision

In an opinion delivered by Justice A. C. Buchanan and concurred in by all six justices, the court declared that the evidence proved that there had been competitive bidding, although patented equipment was involved; that evaluation of bids was proper, and that the "county board had not acted arbitrarily but in proper exercise of its discretion pursuant to notice in the proposal for bids. . . . in full knowledge of all material facts." It added "that it was not for the court to say whether their judgment (county board) was sound, as (quoting the Circuit Court decision) 'the interference by one branch of the government with the other, when it is doing what it is supposed to do, ought to be exercised only in the clearest and most pertinent cases . . . we think they did the right thing.'" The court also struck down the charge of fraud and dismissed the petition for a writ of mandamus.

Bidding was competitive

The court pointed out that the evidence without question showed that competitive bidding was intended from the beginning of the project. "Bids were invited and when received they were dealt with on a competitive basis." The Court also cited the "Information for Bidders" section of the specifications in which it was provided: "The County Board expressly reserves the right to reject any or all proposals, to waive any informalities or irregularities in the proposals received, and to accept that proposal which in its judgment best serves the interests of the County."

"Having invited competitive bids, the County Board should not be, and in the development of its case did not ask to be relieved of the duty, implicit in its invitation, to weigh the bids and make the award fairly and in good faith," the court commented.

The appellants' contention—that effectual bidding was not possible because the specifications described the stoking mechanisms made and patented by Nichols—was not sustained. The court pointed to evidence that only the Nichols mechanically-stoked furnace was available in 1945 when specifications were written and that, notwithstanding this fact, competition had been insured by the proposal including both hand- and mechanically-stoked units.

Evidence also showed that the Morse Boulger mechanical unit had been in service only three months when bids for the Arlington incinerator were advertised. The court agreed with the consulting engineer that a three-months period did not provide either sufficient or adequate data to warrant specification revision and with the engineer's statement that "we didn't think that Arlington should be the proving ground."

"The County had a clear right to frame its specifications to permit it to buy a mechanically-stoked furnace," the court continued, "if it turned out . . . to be in the best interests . . . to do so. The fact that the Nichols unit was the only one made, and was patented, did not shut the County off from inviting a bid on that type of stoker." Competition was not impossible; the mechanical stoker "could be and was made to compete with the hand-stoked type."

Patented devices can be used

The question of availability of a patented article has often arisen where competitive bidding is a statutory requirement. In this connection, the court cited *Hobart v. City of Detroit, 17 Mich. 246, 97 AM. Dec.*, to "support the view that a statute does not prejudice use of patented articles." Part of that decision was quoted: "The security of the city against combinations and extravagant contracts in such cases must rest in the power which the common council possesses to reject any bid which they might regard as unreasonable."

Another precedent in regard to patented equipment was also cited. It is the decision of the Iowa Supreme Court *(Saunders v. Iowa City, 134 Iowa 132, 111 N.W. 529, 9 L.R.A. (N.S.) 932)* which said in part, "Public bodies might be prevented from availing themselves of new inventions and required to depend upon the cobblestones of our forefathers." The Iowa court added that the statute under consideration meant "there must be competition where competition is possible."

Further support is given this viewpoint in *Anno., 77 A.L.R. 702* where it is said, "the weight of authority appears to sustain the right of municipal authorities to designate a patented or monopolized material . . . for public improvements, if it is not the purpose or effect of the specifications to prevent or restrict competitive bidding required by the statute."

Bid evaluation approved

The appellants' claim—that the County Board had no right to evaluate bids because "no notice of such action was given and the method used was unwarranted"—was termed "unsound" by the Virginia Court. The court noted that rejection and acceptance reservations in the specifications vests in the authorities wide discretion as to who is best as well as lowest bidder. Such discretion, the court emphasized, "involves inquiry, investigation, comparison, deliberation and decision"—quasi-judicial functions—that may not be reviewed by the courts when honestly exercised *(43 Am. Jur., Public Works and Contracts, B45, p. 788)*.

The lowest bid, the Court continued, may be determined by dollar standards, but this unit does not apply in selecting the best or the responsible bid. This decision revolves on a number of other factors and elements. *(43 Am. Jr., Public Works and Contracts, B42 p. 784)*. "Clearly among the factors so involved are the experience of the bidder in that field, the quality of his previous work and the cost, not alone of constructing what he proposed to build, but of operating it after it is built. . . ." Justice Buchanan commented.

It should be noted here that the engineer evaluated bids on the basis of figures submitted by respective bidders in "Form of Bid." The evaluation, which resulted in the lowest dollar cost being that of the Nichols bid, was arrived at by ascertaining 20-yr. present worth of the difference between labor and power costs submitted in bids. The 20-yr. period is the term of the bond issue, and the evaluation was equivalent of issuing additional bonds for those amounts.

Appellant's data supports evaluation

Evaluation of bids finds support in the very recommendations of one of the appellants themselves, the court noted. In its decision, the court quotes from the Morse Boulger booklet, "For the purposes of financing, the cost of the plant should normally be written off in 15 to 25 years and the annual finance charge should be considered a part of the cost of disposal by incineration. The plant having the lowest annual cost for financing, operation, and maintenance, over the selected finance period, represents the best value."

Concerning the question of whether or not the Nichols guaranteed manpower operating requirements for operation was less than that of Morse Boulger, the Court indicated that the County Board had a clear right to consider operational as well as installation costs in choosing the best-interest bid. It also stated that the method of evaluation used to that end was proper.

Additional elements—time and experience factors—contributed to the selection of the Nichols bid, the Court noted. Evidence was cited to show that investigation of the two briefly-operated, mechanically-stoked Morse Boulger units by the County Board revealed that burning rates were about one-half of that required for the Arlington incinerator. Also mentioned was the fact that these furnaces had been in operation for only three months and a few weeks, respectively.

Officials may exercise discretion

The decision clearly indicates that public officials may exercise discretion in awarding contracts. The Court said, "When the decision of authorities is based upon a fair and honest exercise of their discretion, it will not be interfered with by the courts, even if erroneous. Courts do not in such cases substitute their judgment for the judgment of the body to which the decision is confided. Interference by the courts is limited to cases in which the public body has proceeded illegally or acted arbitrarily or fraudulently."

In regard to the duties of a public-works awarding authority, the court declared, "that it was a ministerial act but one involving highest discretion."

As to the claim of fraud, the court dismissed this with the statement that "It is sufficient to say that the evidence fails to support the charge."

Project now underway

Following dismissal of all charges by the court, work on the Arlington incinerator project was resumed by the Nichols Engineering and Research Corp. The Alexander Potter Associates representative in this proceeding was M. H. Klegerman.

British Prestress Railroad Ties

H. Kaylor
Civil Engineer,
British Ministry of Works

PRESSED by continuing shortages of lumber, England is making spectacular headway in the development of prestressed concrete for railroad ties.

British engineers estimate that at least 1,000,000 of these ties will be needed each year for the next five years to supplement supplies of lumber.

Both a French method developed by Eugene Freyssinet and a Belgian system devised by Professor. Gustave Magnel are being used to put the prestress into concrete. The Freyssinet method consists basically of pulling all of the wires in one cable simultaneously (ENR April 5, 1945, vol. p. 455); the Magnel process puts tension into the wires two at a time (ENR Feb. 3, 1949, p. 79).

British prestressed concrete ties are made by two distinct methods: a "long-line" process, where the ties are produced on production lines that may be 500 ft. or more long; and by individual molds, where the wires are put in tension against the mold before the concrete is cast.

The long-line method is being used at a factory near Glasgow, Scotland, by R. Costain, Ltd. There are 112 lines, between abutments 460 ft. apart, and each line produces 50 ties at a time. Potential daily output is 1,000 ties, each containing about 3 cu.ft. of concrete.

In this process, two molds at a time are filled on a vibrating table on the center line. Then, the filled forms are drawn along the 20 tensioned wires to their final position, where the concrete is revibrated by surface-type machines. After the concrete has reached a sufficient strength, the wires between units are cut. The cycle of operations takes five days.

Electric heating of the concrete, by passing a heavy current at low voltage through the reinforcement, is being employed in some cases to decrease this period by speeding up curing. Dow-Mac Ltd., for example, obtains the necessary concrete strength by this means in 12 hr. at the Tallington factory.

The British standard specification for this type of tie calls for a $1:1\frac{1}{2}:3$ mix by volume for the concrete, which must have a minimum crushing strength by cube test of 6,000 psi at 28 days.

The high tensile wire used is 0.2-in. dia., having an ultimate tensile strength of 100 to 110 tons per sq. in., with 0.1-percent proof stress of 85 tons per sq. in. and a modulus of elasticity of 13,500 tons per sq. in. In this process, a preliminary load of about 2 tons per wire is applied, the wires being pretensioned two at a time, and fixed by taper pins in a heavy end plate. Three heavy bolts with quick-acting threads keep the end plates at the required distance from the abutments and allow the release of the wires later.

The form is of light-gage steel, with two slotted plates at each end, each at right angles to the other so as to accurately locate the wires.

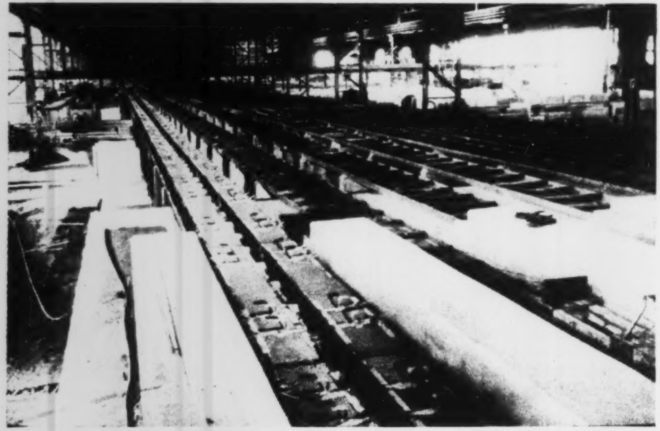
In the individual mold method, the same quality and size of high tensile wire are used as in the long-line method, but with an aluminum mold, which takes the reaction due to the pretension. The tie contains a positive anchorage at each end in the form of two small cast iron blocks around which the wires are passed. These anchorages are not recoverable. Bond with the concrete gives added resistance.

By the use of steam curing, only 24 hr. is required to complete the cycle, thus permitting a quicker re-use of and justification for the comparatively expensive mold.

French practice

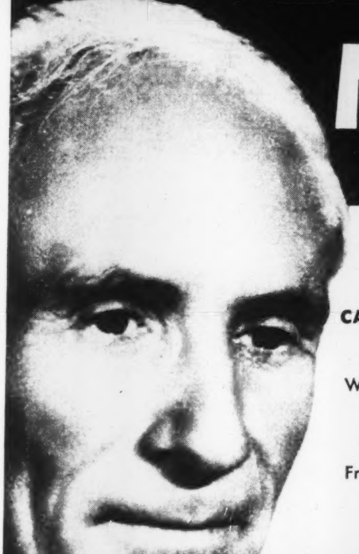
In France, Freyssinet has developed a flexible type of tie made in individual molds. For these ties, deformed-surface wire, 2.5 mm. dia. is used. It has an ultimate tensile strength of 120 to 140 tons per sq. in. Extra bond is the objective in using this wire.

The French ties are 7 ft. 9 in. long as compared with 8 ft. 6 in. for the English type. Volume of concrete is 2.31 cu. ft., and there is 12.5 lb. of high tensile wire and 2 lb. of mild steel in each unit.



500 FT. OF RAILWAY TIES are being formed on each of these "long lines" at a British factory. Metal molds are filled with concrete, then drawn along pre-stressed wires until the "line" is filled.

"From then on, we bought McCULLOCHS"



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CHAIN SAWS

Ralph C. Puckett

CALIFORNIA TREE SERVICE, Los Angeles, says

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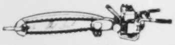

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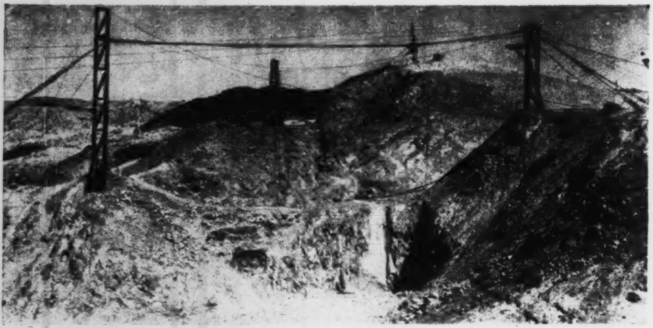
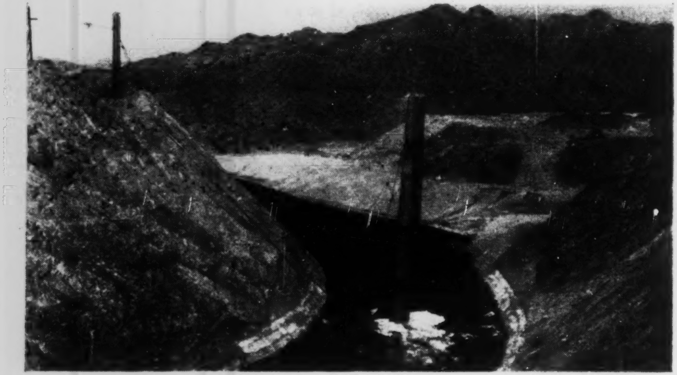


Cableway of salvaged materials . . .



. . . builds Davis Dam bridge pier.

Construction of a reinforced concrete bridge pier, measuring 152 ft. from the floor of the Davis Dam diversion channel to the top of the per, was accomplished by a unique cableway system built primarily of materials available from other construction operations at the dam.

The bridge will act as a central support for two 210-ft. plate girder spans. The girders in turn will support a 36-ft. roadway plus two 5-ft. walkways that are part of a new highway route crossing the top of Davis Dam and running between Kingman, Ariz., and Searchlight, Nev.

The height of the pier plus the 400-ft. distance between abutments made the cableway system necessary. And because the river diversion had to be made before the bridge pier could be completed, an elevator system was ruled out.

Concrete for the lower 50 ft. of the pier was placed by crawler cranes operating from the floor of the diversion channel. After diversion, the pier was surrounded by a depth of 30 ft. of water. Operation of cranes from either abutment was impossible as the channel is some 400 ft. wide at the top and the side slopes are 1 to 1.

The cableway is actually two cableways. It is unique in that instead of having a tail tower that moves on rails, lateral movement is provided by a cableway spanning between two rail towers. The distance between the head tower and the tail towers is 545 ft. and the distance between the tail towers is 147 ft. The track cable across the channel is 1¼ in. and the line between tail towers is 2 in.

Existing materials were used as much as possible. A 60-ft. timber piledriver lead was used for the head tower, anchored by means of guy wires. Steel piledriver leads were used for the tail towers—one 30-ft. lead and the other 55 ft. The load-carrier unit is controlled from the head tower by a ¾-in. endless line. The traveler that operates on the 2-in. cableway between tail towers is remotely operated from the head tower.

Concrete was placed in 10-ft. lifts by 1-cu.yd. buckets, with truck mixers bringing the concrete from the batch plant. Vertical reinforcing bars were butt-welded for continuity.

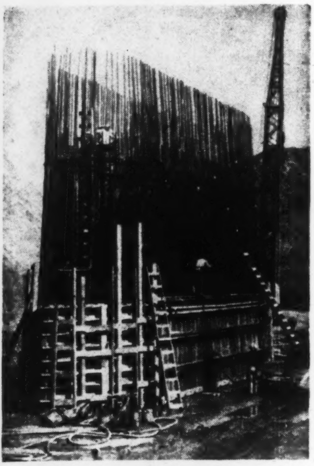
Bottom dimensions of this slender tower are 52x13 ft. and the top dimensions are 40x5 ft. A total of 2,632 cu.yd. of concrete, was placed, 817 cu.yd. was from the cableway.

The bridge pier was constructed by the Utah Construction Co., contractor on the Davis Dam work. The cableway system was devised and built by contractor forces. H. E. Williams is project manager and T. L. Terry is general superintendent for the Utah Construction Co.

The two plate girders supported by the pier will be continuous from one abutment to the other (420 ft.). Fabrication and erection will be by the American Bridge Co. under a recent $229,871 contract. Steel erection will start sometime this fall or winter.

The girders are on a 2 percent grade and are fixed at one end. A separate contract will be let at a later date for placing a concrete deck on the structure and for painting.

Davis Dam is a project of the U. S. Bureau of Reclamation, L. N. McClellan chief engineer. H. A. Bahmeier is construction engineer at the dam for the bureau.



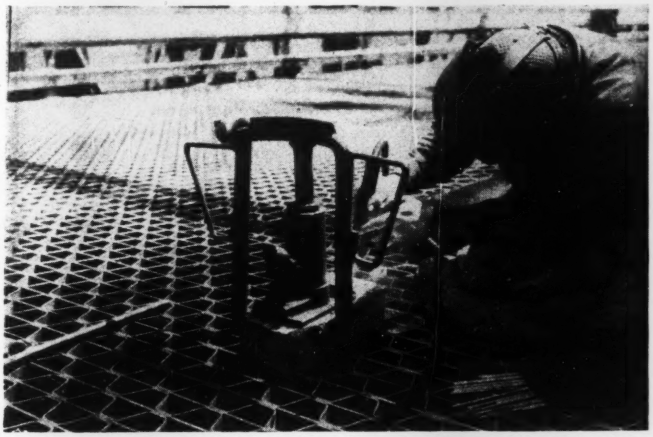
THE FIRST 50 FT. of the bridge pier was constructed from the floor of the diversion channel using crawler cranes to handle materials and place concrete.

FIELD AND OFFICE

Shipping Containers Converted To Job Tool Cribs

Weathertight steel shipping containers serve also as foundations for a portable field office and as tool cribs on a construction project near Pittsburgh. Originally designed to protect cargo against pilferage and damage in marine and rail shipments and to facilitate material handling, the 275-cu.ft. boxes were adopted by the contractor as portable tool houses because they can be moved readily from job to job. Carpenters built shelving in the containers, for their tool cases, and installed lights. Equipped with lifting lugs and skids, the containers can be handled by cranes or lift trucks. They also can be locked, and moved intact without disturbing tools and equipment inside.

STEEL BOXES make handy shanties. Dravo photo.



WELDING CLAMP—A solution to the problem of holding a steel grid floor to a floor beam while a weld is made was obtained by Foreman A. E. McMurphy of the New Hampshire highway department. He bent two 1-in. steel rods in the shape shown, the portions below the floor duplicating those above. With a short, sharp bend at one end, a rod is slipped through the floor on one side of the beam. The other rod is fed down through the grating on the opposite side of the beam, the long leg passing under the bottom flange and resting in the hook of the first bar. The top sections are then hooked together and a hydraulic jack inserted. When the bars are jacked up, they draw the floor against the beam.—Paul S. Otis, *Materials and Research Engineer, New Hampshire Highway Dept., Concord, N. H.*

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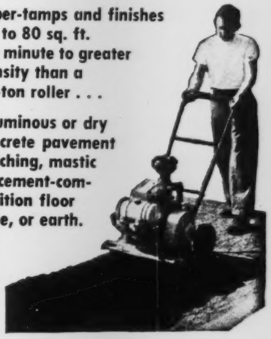

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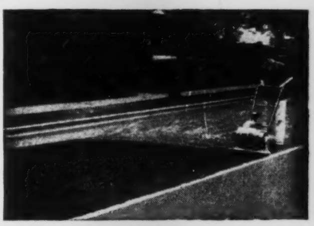

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That is why more contractors use Mall Vibrators on dams, paving projects and other concrete construction. They give contractors complete control over the placement of concrete from the estimate to the finished work. Workmen like to use them and the customer gets a better job.

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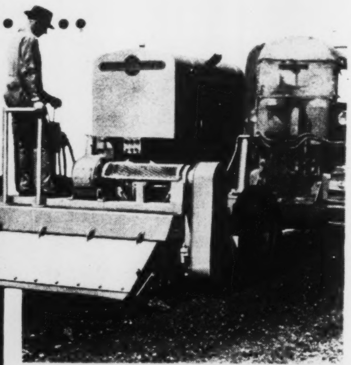

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Reports and Pamphlets

LIGHT GAGE STEEL DESIGN MANUAL—American Iron and Steel Institute, 350 Fifth Ave., New York 1, N. Y. $1.

RECOMMENDED PRACTICES FOR SAMPLING AND TESTING READY-MIXED CONCRETE—National Ready Mixed Concrete Association, 1325 E Street, N.W., Washington 4, D. C. 10c.

REPORT OF THE LEGISLATIVE INTERIM COMMISSION ON HIGHWAYS—The State of Minnesota, St. Paul, Minn.

DRIVER BEHAVIOR—KEY TO SAFE HIGHWAY DESIGN—By Thomas H. MacDonald. The Second David Beecroft Memorial Lecture. Published by the Society of Automative Engineers, 33 W. 39th St., New York 18.

BEHAVIOUR OF BUCKLED RECTANGULAR PLATES UNDER THE ACTION OF SHEARING FORCES—With Special Reference to Rational Design of Web Plates in Deep Plate I Girders—By Sten G. A. Bergman. The Swedish Cement and Concrete Research Institute, The Royal Institute of Technology, Stockholm, Sweden.

INSTABILITY OF EMPLOYMENT IN THE CONSTRUCTION INDUSTRIES—International Labor Office, 1825 Jefferson Pl., Washington 6, D. C. 35c.

RECRUITMENT AND TRAINING IN THE CONSTRUCTION INDUSTRIE. — International Labor Office, 1825 Jefferson Pl., Washington 6, D. C. 35c.

INDUSTRIAL RELATIONS IN CONSTRUCTION INDUSTRIES—International Labor Office, 1825 Jefferson Pl., Washington 6, D. C. 50c.

UNE MISSION D'INFORMATION HYDROGRAPHIQUE AUX ETATS-UNIS POUR LE CONGO BELGE—By E. J. Devroey. Librairie Falk Fils, 22, Rue des Paroissiens, Bruxelles, Belgium.

REGLES D'UTILISATION DES RONDS CRENELES ET LISSES POUR BETON ARME de Limite D'elasticite Superieure ou Egale a 40 kg. per sq. mm. Centre Scientilgue Et Technique Du Batiment, 31, Avenue Pierre-Ier-De-Serbie, Paris-XVIe.

INTERIM MEASURES FOR THE PREVENTION OF DAZZLE ON ROADS—Road Research Technical Paper No. 14. Department of Scientific and Industrial Research, Harmondsworth, West Drayton, Middlesex, England.

SNOW AND ICE REMOVAL PRACTICES IN MICHIGAN MUNICIPALITIES—Information Bulletin No. 58. Michigan Municipal League, 205 S. State St., Ann Arbor, Michigan. $1.50.

SNOW AND ICE CONTROL IN CITIES OVER 200,000 POPULATION—Report of the APWA Committee on Street Cleaning and Snow Removal. American Public Works Association, 1313 East 60th St., Chicago 37, Ill.

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● This 48-page book, "Radiant Heating with National Pipe" is one of the most authoritative books published on the subject. It brings you a complete, comprehensive story of radiant heating and gives helpful information as a practical basis for the planning and installing of an efficient system.

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Here are some of the subjects covered:

- What is radiant heating?
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- How to determine radiant heating coil requirements.
- Radiant heating comfort chart.
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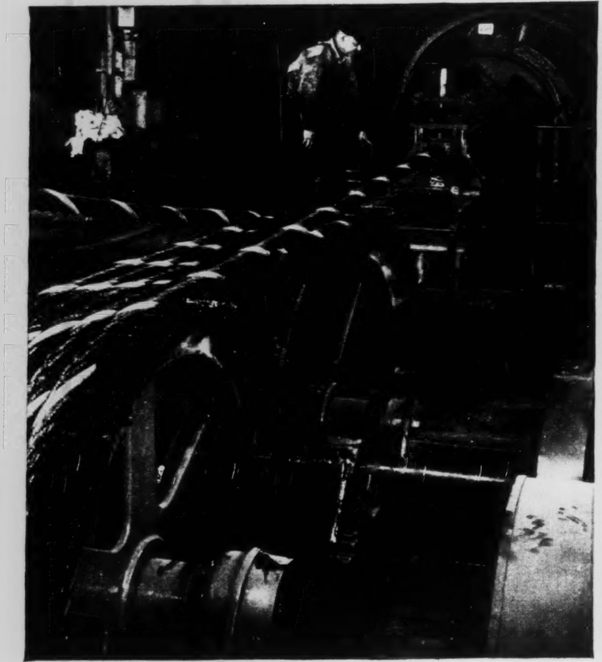
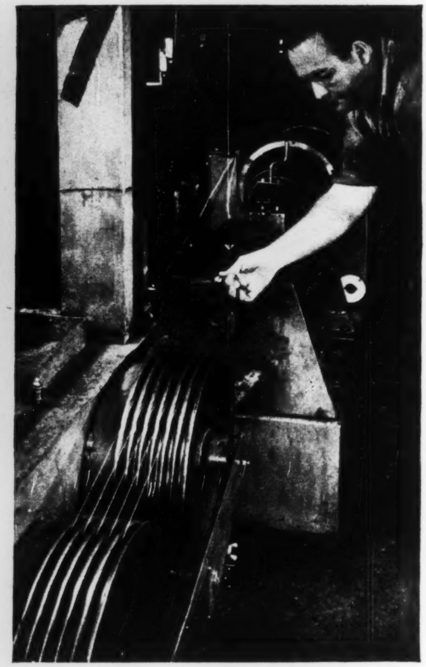
This photograph shows a 3 1/8" diameter Monarch Whyte Strand Wire Rope coming off a Macwhyte closing machine. Weight of this rope is approximately 16.65 pounds per foot. It has a strength of approximately 392 tons and is used for the digging line on large dragline excavator with 35 cu. yd. bucket.



In this photograph is a 3/64" diameter Stainless Steel Cord coming off a Macwhyte closing machine. It weighs approximately 0.35 lbs. per 100 feet; has a strength of approximately 270 pounds, and is used for many small cord needs.



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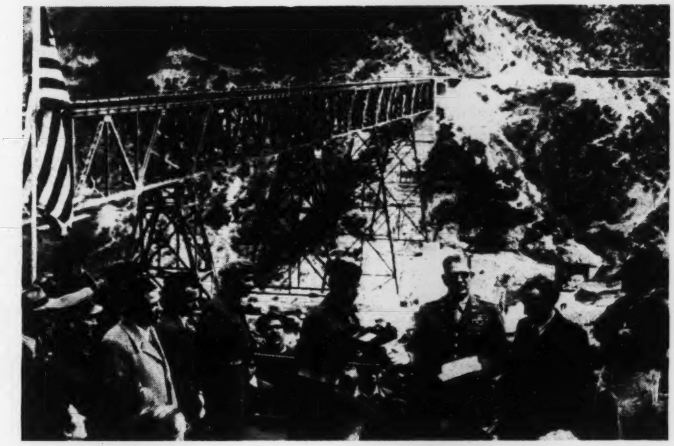


RAIL LINK COMPLETED—Col. David W. Griffiths of the Corps of Engineers addresses Greek workers at ceremonies marking completion of Brallo Bridge on the Athens-Salonika line of the Greek State Railroad. Col. Griffiths led the American Mission for Aid to Greece and supervised reconstruction projects carried out by U. S. contractors (ENR June 9, p. 62); he was recently decorated by Greece for his service.

British seek "know-how"

England—A 17-man team from the building industry of the United Kingdom will arrive in the United States on July 21 for six weeks' study of American construction methods.

Made up of architects, contractors, estimators and craftsmen, this team is the fifth to be sponsored by the Anglo-American Council on Productivity in cooperation with ECA's Technical Assistance Division. The itinerary for the group's tour will be announced later.

During their six weeks stay in the U. S., the visitors will study American methods of constructing low and medium-cost houses, small schools, industrial plants and commercial office buildings of a size comparable to those in Great Britain. The group is particularly interested in methods of utilizing building materials other than lumber in houses.

In the course of their tour, the visiting observers will study designs, costs, procedures, and the methods by which owner, architect, engineer and contractor and laborer cooperate to expedite housing, labor relations and financing arrangements.

Six members of the party will represent contractor-employers. In this group will be four representatives of the National Federation of Building Trades Employers. With them will be one representative from the Scottish National Building Trades' Federation (Employers) and one from the Federation of Associations of Specialists and Subcontractors.

Professional and technical representatives will include four men, and six will represent the building trades.

Industrial Construction

New Zealand—The Dominion government is contemplating an overall program for a pulp and paper industry development which may cost near $100 million. In addition to construction of a paper mill, the plans involve improvement of port facilities at Tauranga harbor on the North Island, laying of some 40 miles of rail line, and building of a new town to serve the paper making operations.

Clarence F. Skinner, Minister of Lands and Rehabilitation, has recently visited the U. S. where he consulted with designers of The Rust Engineering Co. in Pittsburgh, Pa.

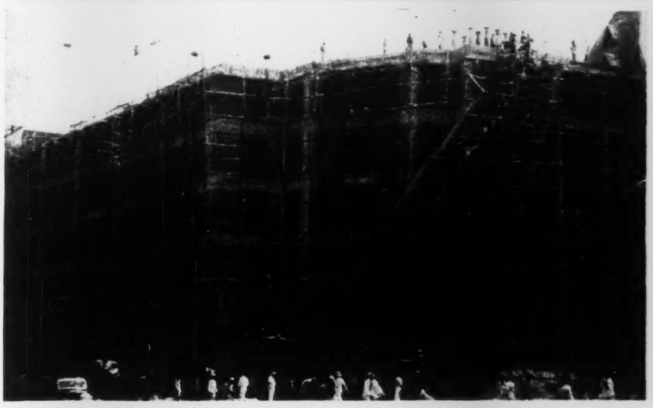
The new program would enable New Zealand to capitalize on its extensive pulp timber resources, similar to American southern pine. Some 900,000 acres of such timber, planted since 1920 under a reforestation program, are now available.

England—Dorman Long & Co., British steel fabricator, is currently turning out some of the largest welded plate girders on record. Each girder is 100 ft. long and 11¼ ft. deep. Flange width is 28 in., and stiffeners are I-sections. Girders weigh 90 tons each and are fabricated in a revolving jig resembling a railroad car dumper. A total of 22 are on order to be used in a turntable in the foundry of the Steel Company of Wales, Ltd., at Port Talbot.

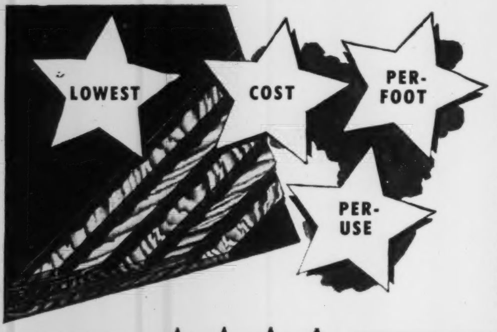
Brazil—Standard Oil Company of Brazil, wholly-owned subsidiary of Standard Oil Company (New Jersey), is spending $25,000,000 in a six-year expansion and reequipment program.

Standard's expenditures are being made for new bulk petroleum ocean terminals, interior bulk plants, aviation facilities and miscellaneous equipment.

At present Brazil is wholly depend-



PICTURESQUE BUT IMPRACTICAL methods, now being used in the second year of construction on the Mercantile Bank of India, Bombay, are the result of severe material shortages—not the rejection of modern techniques. Better scaffolding material is not available, so bamboo does the job. Cement is short, so coolies, carrying concrete in basins, work as fast as the supply permits.



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SUPER-Harbord PLYCRETE —Grade-marked: EXT • DFPA • AA. For multiple re-use form work. Hot-press-bonded with phenol-type resin adhesive. ALL veneer jointed. All open defects in crossbands repaired. Re-humidified after pressing. Sanded smooth both sides. Edge-sealing and oiling optional.

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Harbor PLYFORM—Grade-marked: PLYFORM • DFPA • BB. Bonded with water-resistant 10-cycle glues (not waterproof). Both faces are BB (solid) veneer, free from open defects. Sanded smooth. Factory edge-sealing and oiling optional.

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1 Hard, check-free, durable overlay faces—for near-perfect concrete surfaces.

2 Genuine SUPER-Harbord core-body (sanded smooth)—for strength and durability.

3 Overlay has a "tooth" for oil, sealer, or lacquer; slight absorptive liner effect reduces pit voids.

4 Reddish-brown overlay face will NOT bleed nor discolor concrete. No added finishing problems.

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For information concerning Harborite and other Harbor Concrete Form Panels, contact:

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ent on foreign oil supplies. However, it is hoped some day to develop presumably big fields at home. At Bahia, the only place where major drilling has been undertaken, satisfactory wells have been brought in, but most of them have been capped for lack of refineries.

Equipment for a federal government oil refinery to be built at Mataripe, near Salvador, Bahia, has begun to arrive. It will be Brazil's first refinery.

Housing

India—Nearly half a million residents of Bombay have no homes but the streets and the ratio of population to living space is about 25 persons per 100 sq. ft., according to a recent survey. Investigators estimated that Bombay's population now stands roughly at 3,500,000, or three times the number which could reasonably be accommodated in existing housing. In the past decade the population rose 2,000,000 while only 16,000 new residential structures were erected.

Mexico—President Miguel Aleman has approved plans for insurance companies operating in Mexico to provide $10,000,000 for construction of 20,000 low-cost houses. These will be built in the Federal District (Mexico City). A long term loan to finance the project will be amortized from low rents paid by tenants of the houses.

Puerto Rico—Negotiations are under way by several U. S. and Puerto Rican construction firms for building of a large, low-cost 30,000-unit housing project. The plan is estimated to cost over $70,000,000 and is to be completed within the next three years.

Reinforced concrete and terra cotta blocks will be used in mass production methods, and it is estimated that from 15 to 20 houses will be built daily.

Construction will start as soon as the Government Development Bank approves construction contracts.

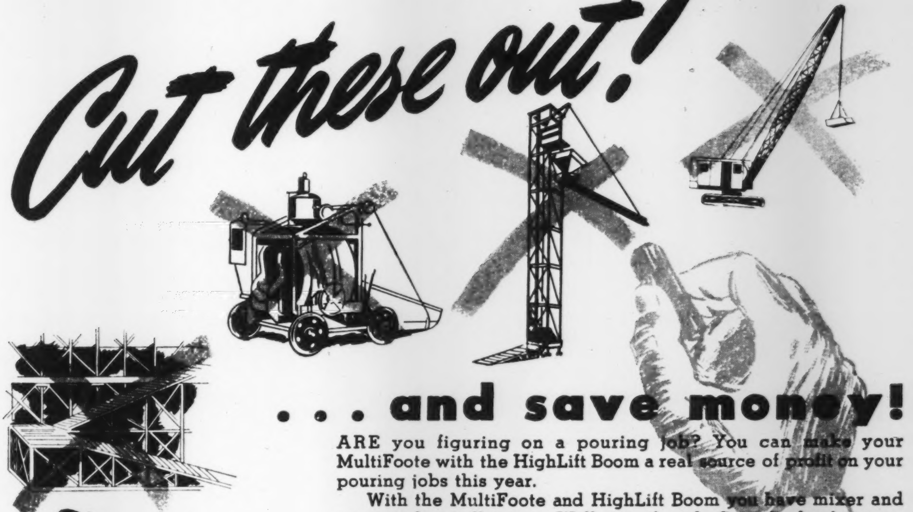
Public Construction

Mexico—Work began recently on the proposed new University City to house the University of Mexico—oldest university in the western hemisphere. (Founded in Mexico City in 1553 as the Royal and Pontifical University of Mexico.)

First group of buildings, to include the engineering college, medical college and others, will have an initial outlay of around $10,000,000.

The new campus will be built on an ancient lava bed outside Mexico City that for centuries has been barren and unused acreage. This lava bed is a 15 square mile basaltic stream that once flowed from the volcano of Xitli.

Cut these out!



. . . and save money!

ARE you figuring on a pouring job? You can make your MultiFoote with the HighLift Boom a real source of profit on your pouring jobs this year.

With the MultiFoote and HighLift Boom you have mixer and concrete hoist all in one. Walk into the job. Spot the bucket over the form or pour direct to your concrete buggies. No chuting tower! No crane! No ramps! No staging! Put the mix 23 ft. up and right where you want it! Hours saved in transfer from mixer to handling equipment! Losses and spillage reduced to a minimum! Buggy time saved! Labor saved! Capacity increased because you can have anything from a 27 cu. ft. batch a minute up to a 34 cu. ft. batch every 35 seconds.

Don't figure on a pouring job without learning more about this machine. Ask for a copy of the booklet, "How Would You Do These Jobs?"

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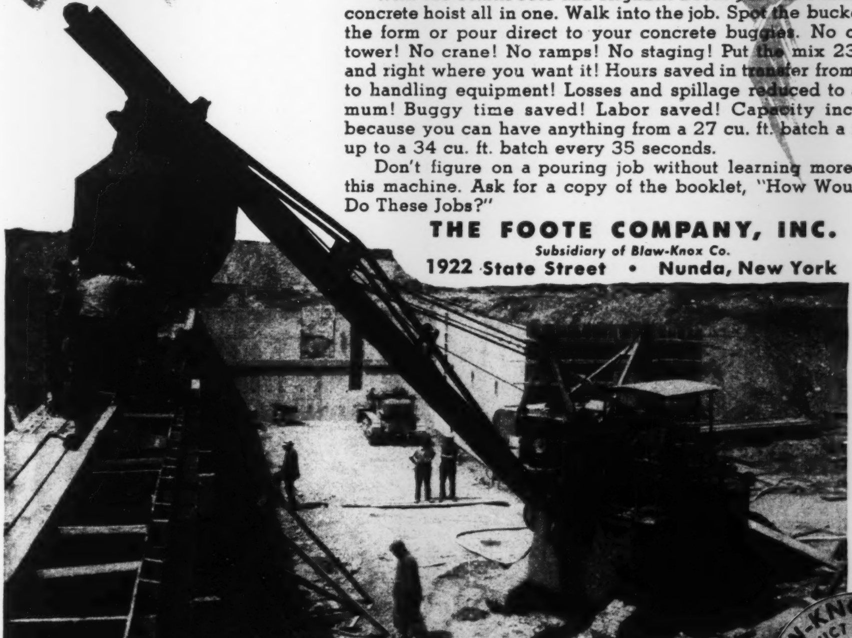

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MUNICIPAL AFFAIRS

Seattle "Tells All"

The recently-formed Seattle, Wash., Civic Promotion Commission used some $8,000 worth of newspaper space to give people of the city "a brief digest of what's going on at City Hall."

The report took the form of an 8-page tabloid section in each of the city's two daily newspapers. Principal articles told about the city's "Multi-Million Dollar Public Works Program" and a "New Planning Program." Other stories described the city's $22,000,000 street program, a new state law that helps the highway program, a new Public Safety Building under construction, a pollution control program, and plans for library construction.

To show just where each tax dollar goes, the commission picked out a hypothetical citizen named "Joe," who pays an even $100 in taxes each year to the city government. Then it broke down Joe's $100 into the amount for each department: for example, $4.80 for the library program; $9.68 for parks, 8 cents for the Board of Public Works, $19.08 for the Engineering Department, $3.70 for the Building Department. Joe's $55.69 property tax includes 81 cents a year to retire bonds on the Public Safety Building, 57 cents for street lighting, 50 cents for sewer construction and 36 cents for parks, the report set forth.

The work of Ewen C. Dingwall, commission manager, the report is believed to be one of the most complete and most widely circulated to be issued by an American city.

Airport Progress

Three cities pushed ahead with airport improvement plans. At Richmond, Va., construction of the $700,000 administration building at Byrd Airport, is expected to be completed in December, a month ahead of schedule.

Bids are being received for paving a 3,000 ft. long runway at the Municipal Airport at Bedford, Ind.—an air link which may start feeder airline service through southern Indiana between Indianapolis and Louisville.

The city commission of Memphis, Tenn., received bids on more than $600,000 of runway improvements to launch an expansion program of Memphis Municipal Airport. The work, if awarded, will extend the east-west and southwest-northeast runways; provide better lighting for the two runways; and provide taxiways connecting the southwest-northeast, north-south and southeast-northwest runways.

New Building Code

Two years of study and effort were completed in Cleveland recently with the adoption by the city council of an 800-page building code that supersedes all existing statutes.

The code was signed immediately by the Mayor, and became effective actually on June 27.

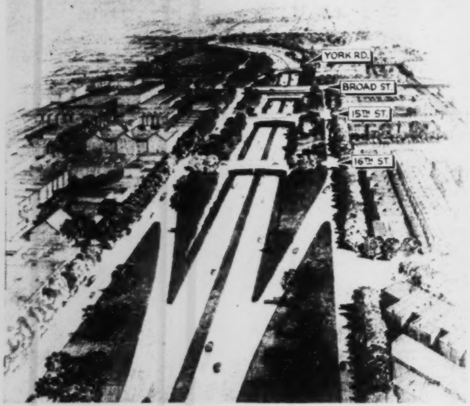
Believed by its sponsors to be one of the most progressive and functional codes in the United States, the new law was drafted to meet present-day standards and contains machinery to keep it automatically up to date Nationally accepted standards have been utilized wherever possible to define acceptable practice in design, quality of materials and construction. A detailed discussion of the new code will be presented in a forthcoming issue of ENGINEERING NEWS-RECORD.

Atlantic City Erosion

The U. S. government should participate in a $4,500,000 project to halt erosion on the Absecon inlet and ocean shorelines of Atlantic City, N. J., the Corps of Engineers told the commissioners in a recent report.

The federal allocation would be one-third (the maximum allowable) with the balance to be contributed by the state and municipality. The recommendations were announced by Brig. Gen. G. J. Hold, division engineer in New York, and followed a co-operative survey by Atlantic City and the Army Engineers.

Mayor Altman announced that the city commission would study the Army recommendation, with an eye on the problem of financing. Civic and business interests have been clamoring for the city to launch an all-out program against the erosion that has been gradually removing sections of the beach


YORK RD.
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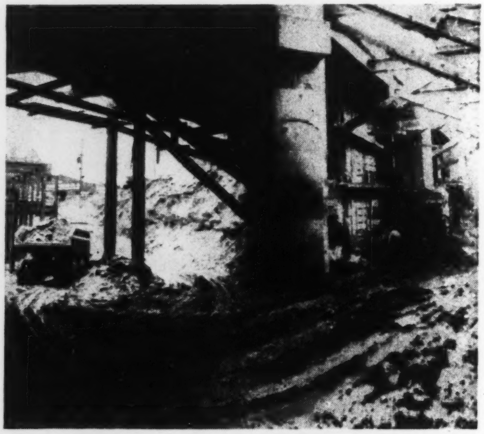

RAPID TRANSIT PROGRESS IN PHILADELPHIA—Sketch (left) is of the Roosevelt Boulevard Extension showing the proposed extension looking eastward. Bridges cross the highway at 16th, 15th, Broad St. and York Rd. At Broad St. the road will go under the present Broad St. subway (highspeed) line which will become a span with windows facing the highway. Cost is estimated at about $55,000,000. Subway fork in the new Market St. subway extension is shown (at right) where trolleys will switch to Ludlow St. Concrete pillars support Market St. elevated (high speed) line which continues in operation during multi-million dollar construction project. Steel framework at left is for the 33d St. station. (Evening Bulletin Photo)

from the most valuable areas of the resort city.

New Chattanooga Terminal

Two consulting engineering firms—L. A. Schmidt, Jr., of Chattanooga, Tenn., and Polk, Powell & Hendon, of Birmingham, Ala., and Nashville, Tenn.—have submitted to the Chattanooga Terminal Authority a master plan for railroad track relocation in the city and a new terminal station to cost $12,377,081.

The recommended program would provide a new rail terminal on Jefferson St. between Rossville Blvd. and Main St. to be used by four railroads: the Southern-Nashville; Chattanooga & St. Louis; Central of Georgia, and Tennessee-Alabama-Georgia.

In addition, the plan provides for the elimination of 17 of the 25 major grade crossings in the city. All downtown grade crossings would be either eliminated or separated. Freight yards of both the Nashville, Chattanooga & St. Louis Ry. and the Central of Georgia Railroad would be relocated.

The Chattanooga Terminal Authority was created in 1947 and is empowered to issue revenue bonds up to $10,000,000 to finance the construction of a new rail terminal system.

Air Pollution Fight

In four widely separated areas, progress was reported in the fight against air pollution.

In Binghamton, N. Y., 300 members of the Southern Tier Technical Society are being mobilized to cooperate in the smoke abatement program. Chairman of the committee is Norval L. Platt, president of the Broome Area Chapter, New York State Society of Professional Engineers.

A new smoke abatement ordinance has been enacted in Fort Wayne, Ind. It defines a smoke nuisance, consolidates smoke control authority and establishes penalties for violations. Mayor Henry E. Branning, jr., must now appoint a smoke abatement commission, part of the Department of Public Safety, which will employ a smoke inspector. The commission will be comprised of the chairman of the Board of Safety, the building commissioner, and three members to be named by the mayor.

About 30 plants in the Buffalo, N. Y., area are installing new smoke eliminating equipment or improving present systems, according to the first comprehensive report on the progress of the newly organized Smoke Abatement Bureau in Buffalo.

The Air Pollution Control of Philadelphia, Pa. announced formation of a disaster relief organization. Newell K. Chamberlin and Walter C. Wag-

Going down to stay!

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PRESSURE-CREOSOTED PILES

● Never underestimate the damage that marine borers can do to untreated wood in salt water. In three to six months, they'll sometimes *honey-comb* untreated piles. In one year, they caused $3,000,000 worth of damage in a single American harbor.

The 76-foot piles pictured below have been pressure-creosoted by Koppers. This treatment protects piles against marine borers *and* decay—the two greatest threats to useful service life. Thirty years from now, based on case histories of similar installations, these Koppers Pressure-Creosoted Piles will *still* be sound and serviceable.

For piers, wharves, groins, jetties, breakwaters—in fact, wherever water and construction meet—get the protection that Koppers Pressure-Creosoting Treatment provides. Koppers Treating Plants deliver pressure-creosoted piles on schedule . . . sizes up to 130 feet are available. Quotations gladly furnished.

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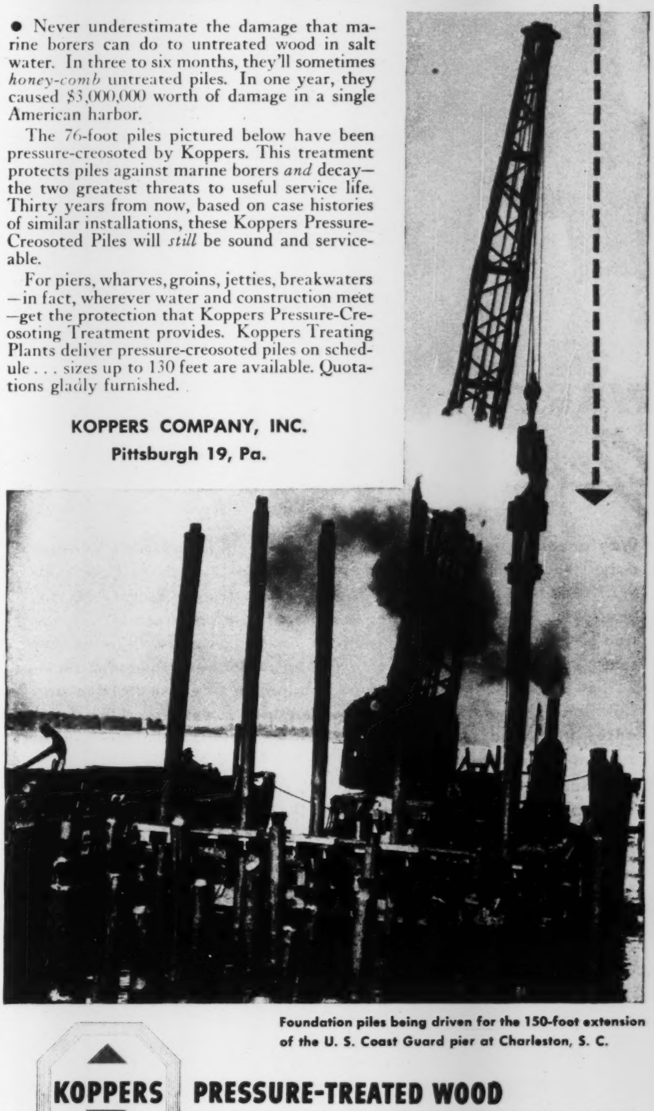
Pittsburgh 19, Pa.



Foundation piles being driven for the 150-foot extension of the U. S. Coast Guard pier at Charleston, S. C.

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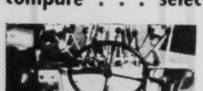

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ner, engineers and members of the board, are to draft plans.

It was explained by E. Walter Hudson, chairman of the board, that such a group would not conflict with but would cooperate in the work of other disaster organizations like the Red Cross. The plan is to get quick action in the event of such an incident as that at Donora, Pa., where a few months ago a number of persons died when poisonous "smog" settled over the city. The organization also seeks cooperation of engineers of large industrial plants and plans measures to safeguard life should any such air pollution occur in Philadelphia. Meanwhile the board set Aug. 15 as the deadline against burning garbage on privately owned lots.

MUNICIPAL BRIEFS

New Chicago Stations—The Chicago Plan Commission favors two new railroad passenger stations south of the Loop—one between Clark St. and the south branch of the Chicago River from Harrison St. to 16th St., the other on Illinois Central property at Roosevelt Rd., and Michigan Ave. The first one would replace the La Salle St., Dearborn and Grand Central stations.

Off Street Parking—Ann Arbor, Mich., recently opened a $365,000 muncipally-owned, off-street, three-tier parking structure, with 241 parking spaces at 10 cents for the first two hours and five cents for each additional two hours. Three more structures of 261 spaces will be built soon. City has pledged parking meter revenues for the purchase of off-street parking lots. Construction will be paid for out of revenue from operation and from parking meter funds.

Civic Center—Two top priority projects in the proposed civic center for Minneapolis, Minn.,—a public safety building and a central heating plant—have reached the practical study stage. The public safety building would require 170,900 sq. ft. of floor space to accommodate the police and fire department administration offices, a central fire station, the municipal courts, clerks of court, city jail, and a basement garage for official cars.

Montreal Improvements — Montreal, Que., will spend $39,000,000 in public improvements this year, according to H. A. Gibeau, director of public works. The work will include a viaduct over C.P.R. tracks on St. Catherine St. E., sewers, waterworks, parks, underground conduits, tunnels, swimming pools, and municipal buildings.

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MEN AND JOBS

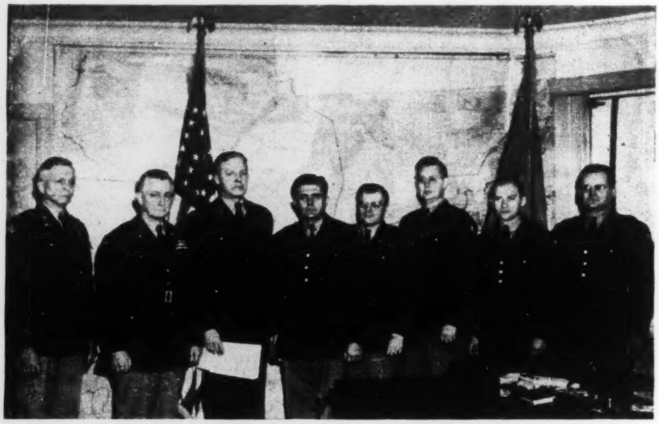
Col. Emerson C. Itschner, Corps of Engineers, will become district engineer at Seattle, Wash., July 26, succeeding **Col. Leland H. Hewitt,** transferred to the command of the U. S. Army Headquarters for the Caribbean Area at Quarry Heights, Canal Zone. Since May, 1946, Colonel Itschner has served as chief of construction operations, military construction division. With the Corps of Engineers since graduation from West Point in 1924, he took a civil engineer course at Cornell University and studied at the Engineer School, Fort Humphreys, Va. He was a member of the Alaska Road Commission, resident engineer on a Mississippi River lock and dam project, and assistant to division and district engineers along the Mississippi. Early in the war, he was chief of Air Force construction for the Chief of Engineers, carrying out a large airfield construction program. Later, as chief engineer of Adsec in Europe, he was responsible for heavy construction. Other war jobs included the planning and initiating of the reconstruction of the Port of Cherbourg, and the rehabilitation of public utilities in the American sector of northern France, Belgium, Luxembourg and Germany.

The Corps of Engineers has transferred **Col. Joseph J. Twitty,** Mobile, Ala., district engineer to command the Second Engineer Special Brigade at Fort Worden, Wash. Col. Twitty has headed the Mobile engineering district since July, 1947.

The city council of Halifax, N. S., will appoint **R. M. MacKinnon,** present works commissioner and chief engineer, to the new post of consulting engineer to the civic works departments.

Appointment of **Miles L. Washburn,** of Devon, Pa., as project engineer in District 6, with headquarters at Ardmore, has been announced by the Pennsylvania Highways Department. **William B. Whittock** has resigned as resident engineer in the Eighth District, at Harrisburg.

Arthur B. Chappell, Sr., who has had 47 years experience in the engineering field, has been appointed village engineer of East Rochester, N. Y. He spent many years in federal, state, county and local engineering departments and worked on the construction of the N. Y. State Barge



Civilian employees in the headquarters of the Great Lakes Division, Corps of Engineers, have formed a reserve unit to provide trained officer personnel to augment the establishment's regular army staff in emergencies. At the ceremony in Chicago were, left to right, Col. L. G. Yoder, 5th Army Engineer; Col. D. O. Elliott, Great Lakes Division Engineer; the Engineer Reserve members of the new unit—the 5400th ORASU—commanding officer Col. E. W. Nelson (in civilian status, chief of the engineering division); Lt. Col. J. K. Borrowman (chief of military construction); Maj. D. R. Terrill (V. A. Hospital branch); Maj. V. O. Peterson (asst. chief of civil works branch); Maj. J. Hoffman (chief of the legal branch); Lt. W. A. Strandin (with Chicago Land Clearance Commission).

Canal and on several of Rochester's large buildings.

H. H. Roberts is chief engineer for Consolidated Builders, Inc., at Detroit Dam, near Mill City, Ore. He was chief engineer for Ozark Dam Constructors, Bull Shoals Dam, Mountain Home, Ark., member of the firm of Moffatt, Nichol & Roberts, engineers, Los Angeles, Calif.; chief engineer for Contractors, Pacific Naval Air Bases, U. S. Naval Advance Base Depot, Port Hueneme, Calif.; engineer for Guy F. Atkinson Co., Neah Bay breakwater & Mud Mountain Dam, state of Washington; engineer for Mason Walsh Atkinson Kier Co., Grand Coulee Dam; and engineer for Stone & Webster Engineering Corp., Rock Island Dam, Wash.

Evan Norton, former city engineer at Conway, S. C., has been appointed city engineer at Winston-Salem, N. C. A graduate of Clemson College, he will head a new engineering section of the public works department in charge of engineering for street paving projects, designs for water and sewage system improvements, a drainage works, and city engineering, maps and records.

C. W. Kenney, construction engineer for West Penn Power Co., Pittsburgh, has retired after more than 43

Harold T. Nelson, formerly assistant regional director for Region 1, Bureau of Reclamation, has become regional director at Boise, Idaho, succeeding R. J. Newell who retires July 1 after 46 years. Mr. Nelson, 41-year-old graduate of the University of Idaho, joined the Bureau of Reclamation as a junior engineer in 1936. He was construction engineer on the Roza Division when transferred to the Boise office in 1946 as assistant regional director.

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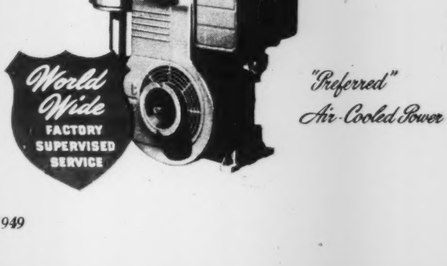

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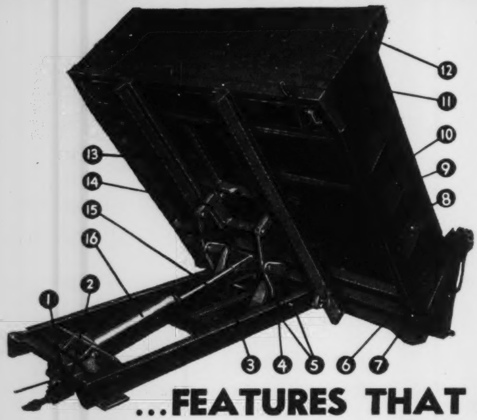

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6. NON-BINDING OFFSET TAILGATE HINGES standard on Model "D-6" Contractors Body.
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BAY CITY

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years. He had been responsible for the many civil engineering projects in the company's system. **Gordon B. Hoffman** has been promoted to company civil engineer, to be responsible for the civil engineering design of all construction projects for the power and operating departments. A Cornell graduate, he joined West Penn in 1931 as an engineer at New Kensington. **George L. Braithwaite** was named assistant civil engineer.

O. B. Stewart, assistant head of the civil works branch of the South Atlantic Division, U. S. Corps of Engineers, Atlanta, Ga., has been appointed acting head to succeed **Emmett H. Bullock**, who has retired after 42 years of service with the Corps of Engineers. Stewart is a civil engineering graduate from the University of Tennessee in 1906.

L. Richmond recently resigned as the engineer for the Butler Construction Co., highway contractors. He has opened an office in Grand Forks, N. D., and will engage in consulting engineering work, on highway construction, airports and municipal projects. A highway engineer from 1933 to 1943, Mr. Richmond has been employed in the last six years as engineer and superintendent for the Butler Co. He was graduated from the University of North Dakota at Grand Forks in 1933.

The retirement of **S. A. Weakley**, veteran employee of the Corps of Engineers, is announced. He had 38 years of service, beginning with the Chattanooga district in 1911 as a surveyor after graduation from Vanderbilt University as a Bachelor of Engineering. Following service in World War I, he was reappointed junior engineer in the Nashville district. He was active in the early surveys and reports on both the Cumberland and Tennessee Rivers, having served in various capacities including that of chief of the design and drafting branch and as assistant to the chief civilian engineer of the district. In 1939 he was assigned chief of the operations division for the operation and maintenance of the Cumberland River navigation channel, locks and dams, and all of the Tennessee River locks.

Wayne B. Jefferis, of Lebanon, Pa., has been named chief construction engineer of the Pennsylvania Department of Property and Supplies, succeeding **Allen F. Jones**, who recently has been transferred to the Bureau of Grounds and Buildings in the department.

ENGINEERING SCHOOLS

University of Pittsburgh's School of Public Health

R. H. Fitzgerald, chancellor, and Thomas Parran, dean of the new graduate school of public health, University of Pittsburgh, have announced the following appointments to the faculty:

James A. Crabtree, M.D., University of Tennessee, is to be the new head of the Department of Public Health Practice.

Dr. Crabtree held various county, municipal and state posts under the Tennessee State Health Department from 1926 to 1934. From 1934 to 1938 he was associate director of health, Tennessee Valley Authority. Since 1938 he has been with the U. S. Public Health Service, initially as epidemiologist in the National Cancer Institute; subsequently as executive assistant to the Surgeon General, executive secretary of the Health and Medical committee of the Council of National Defense, consultant to the War Production Board and to the Office of Lend-Lease Administration, Acting Director of Health for the United Nations Relief and Rehabilitation Association, Deputy Surgeon General, and director of the Medical Division, National Security Resources Board.

Antonio Ciocco, D.Sc., University of Naples; D.Sc. in Hygiene, Johns Hopkins University, is head of the Department of Biostatistics.

Dr. Ciocco was associate in otology, Johns Hopkins school of medicine, from 1930 to 1936, and associate in biology, Johns Hopkins school of hygiene and public health, from 1937 to 1939. Since 1939 he has been biometrician, Public Health Administrator, and deputy chief of the Division of Public Health Methods, U. S. Public Health Service.

Theodore F. Hatch, B.S. in civil engineering, University of Maine; S.M. (Sanitary Engineering) Harvard University, is professor of industrial health engineering.

Mr. Hatch was assistant sanitary engineer for the Tennessee State Health Department from 1925 to 1926; instructor in industrial hygiene, Harvard school of engineering and School of Public Health, 1926 to 1936; associate engineer, New York Department of Labor, Division of Industrial Hygiene, 1936 to 1940; associate professor of industrial hygiene, University of Pennsylvania school of medicine, 1940 to 1942; resident executive, Medical Research Laboratory, Fort Knox, Ky., 1942 to 1945; and since 1945 research director of the Industrial Hygiene Foundation, Pittsburgh.

Paul M. Densen, A.B., Brooklyn College; D. Sc., Johns Hopkins University School of Hygiene and Public Health, is associate professor of biostatistics. Dr. Densen was a member of the faculty of Vanderbilt University from 1939 to 1947, as instructor in biostatistics in the medical school, then assistant and associate professor of preventive medicine, holding joint appointments in the School of Nursing and the School of Social Work. From 1943 to 1947 he was statistical consultant to the Health and Safety Department of the Tennessee Valley Authority. Since 1947 he has been chief of the medical research statistics division, Department of Medicine and Surgery, Veterans Administration.

UNUSUAL DORMITORY—This serpentine, ultra-modern brick dormitory at the Massachusetts Institute of Technology, Cambridge, Mass., has just been opened. On account of its W-shaped design, the building contains no north bedrooms. All rooms receive direct sunlight for several hours a day, and nearly all have fine views of the Charles River basin. Designed by the Finnish architect Alvar Aalto, visiting professor of architecture, the unique building contains 247 residence rooms—triples, doubles and singles, and there is generous lounge space on each of the seven floors. The building stands on a 332-125-ft. site and is 65 ft. high. The builder was the Aberthaw Co., with Perry, Shaw and Hepburn as consulting architects.

Educational Notes

The Norfolk and Southern Railway Co. has established an annual $500 scholarship in civil engineering at North Carolina State College, Raleigh, N. C., to be awarded to a son of an employee of the railroad.

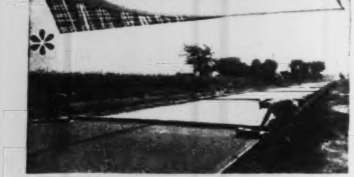
The experimental towing tank of Stevens Institute of Technology is to be used for model tests of a dustpan type of hydraulic pipeline dredge for the Corps of Engineers, U. S. Army, in channel maintenance work on the Mississippi River. The tests will determine the resistance and propulsive characteristics of the hull when the vessel is operating at speeds from 6 to 12 mph. and when operating with its attendant fleet at speeds from 6 to 10 mph.

Engineering hall, University of Illinois, in which, for the most part, the department of civil engineering is located, has been officially named "Civil Engineering Hall." It was erected over 50 years ago.

The new 10-story student and staff housing unit at the Illinois Institute of Technology will be called Gunsaulus Hall after the late Rev. Dr. Frank W. Gunsaulus, educator, clergyman and prominent Chicagoan for three decades, who for 29 years was president of Armour Institute of Technology, now Illinois Tech.

A program of graduate work in engineering, physics, and chemistry—leading to the master's degree—is to be inaugurated at Drexel Institute of Technology, Philadelphia, beginning with the fall term, according to President James Creese.

January, 1949, graduates in engineering and science at Illinois Institute of Technology are drawing average monthly salaries of $15 more than the beginning pay of either the February, 1948, or June, 1949 classes. The present figure of $280 for a basic 40-hour week is a new all-time high for a group of Illinois Tech graduates, John J. Schommer, director of placement, reports.



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Elections and Activities

The Association of Engineering Colleges of New York State elected officers for the year 1949-50, recently. Harold W. Bibber, chairman of the division of engineering, Union College, Schenectady, was elected president; Dean William Allan, school of engineering, College of the City of New York, vice-president; and Brother Amandus Leo, dean, school of engineering, Manhattan College, secretary-treasurer.

J. A. Cormier, president of Cormier Ltd., Victoriaville, Que., has been elected vice-president of the Quebec Roadbuilders Association.

Paul Mahoney, Council Bluffs, Ia., Pottawattamie County engineer, has been elected president of the Iowa County Engineers Association. Also elected were John Mors, Fort Dodge, Webster County engineer, as vice-president and C. Arthur Elliott, Jefferson, Greene County engineer, as secretary.

Thurman C. Tejan has been named executive secretary of the Constructors Association of Western Pennsylvania, succeeding the late Roy A. MacGregor. He has been field representative. A graduate of Penn State, he served three years with the United States Marine Corps in the Pacific and was released as a captain. He has been active with the labor, trade practice, policy and membership committees of the association.

Franklin County Chapter of Professional Engineers at Columbus, Ohio, has elected the following officers: Col. Rawl M. Edgar, chief construction engineer area office, Veterans Administration, president; Loring T. Hunziker, chief engineer, Lane-Ohio Co., vice-president; Earl E. Sanderson, chief hydrologist, Ohio Water Resources Board, recording secretary; Eugene W. Davis, construction engineer, Ohio Department of Highways, secretary-treasurer; Wylls G. Stanton, associate professor at Ohio State University, director-at-large; and functional directors, C. E. Bischoff, Alden S. Stilson, Louis F. Dabe, Harold Hayman, C. D. Bowser, and Ralph Gregor.

MAJOR MEETINGS

American Society of Civil Engineers, Hotel Prado, Mexico City, July 13-15.

Concrete Reinforcing Steel Institute, The Greenbrier, White Sulphur Springs, W. Va., July 14-16.

Pan-American Engineering Congress, Rio de Janeiro, Brazil, July 15-24.

New England Water Works Association, The Balsams, Dixville Notch, N. H., Sept. 13-16.

Public Works Congress and Equipment Show, Municipal Auditorium, Kansas City, Kan., Sept. 18-21.

Institute of Traffic Engineers, Wardman Park Hotel, Washington, D. C., Sept. 25-28.

George R. Town, manager of engineering and research for the Stromberg-Carlson Co., has been elected president of the Rochester, N. Y., Engineering Society, succeeding Harvey J. Klumb. Other new officers: First vice-president, Stanley C. Stacy; second vice-president, Carey H. Brown; treasurer, Howard Harding; directors for three years, E. Blakeney Gleason and John W. Morrison.

George A. Esterbrook has been elected president of the Albany Chapter, N. Y. State Society of Professional Engineers, succeeding Leo B. Westfall. Mr. Esterbrook is chief engineer at the Albany Felt Co. Julius A. Kaestner, Jr., Albany County highway superintendent, was elected vice-president and Conrad S. Christenson of the New York Power & Light Corp. engineering department, was reelected secretary-treasurer. Morris J. Roses, vice-president of James McKinney Son, Inc., and Richard H. Salisbury, senior structural engineer in the State architect's office, were elected directors for two years.

Frederick J. Cellarius, Dayton, Ohio, consulting engineer, who received his civil engineering degree from Ohio State University, Columbus, in 1888, was recently presented with an award of merit for 60 years' service in his profession by the Dayton Chapter of the Ohio Society of Professional Engineers. He was awarded honorary membership in A.S.C.E. in 1937, was first president of the Dayton Society, and former secretary-treasurer of the Ohio Society (1900 and 1901). He has been a member of the Dayton City Plan Board since 1936.

The Technical Societies of the Niagara Frontier, comprising 27 societies with a membership of 7,500 technical and scientific workers, elected Kenneth K. Koontz of the Engineering Society of Buffalo, N. Y., as its new president. Other officers are Col. Herbert Ashley, Society of American Military Engineers, vice-president; Clair E. Gaylord, American Institute of Electrical Engineers, secretary, and Carols E. Harrington, American Society of Mechanical Engineers, Treasurer.

Clyde A. Dillon, of Raleigh, has been named new president of the North Carolina Engineering Foundation, to succeed the late U. S. Senator J. Melville Broughton, who headed the group from its founding in 1944.

North Central chapter of the Ohio Society of Professional Engineers has elected these new officers: Frank L. Hanson, Lucas, president; James A. Atkinson, Galion, vice-president; Daniel R. Wolff, Mansfield, secretary-treasurer; Walter Metzler, Wooster, trustee; John J. Cunning, Mansfield, alternate trustee.

Southern Ohio chapter of Ohio Society of Professional Engineers has elected Ronald A. Gordon, Wilmington, president. Paul Miller, Chillicothe, secretary; and Edmund Hodson, Hillsboro, alternate trustee.

Jefferson County chapter of Ohio Society of Professional Engineers has elected E. A. Higgins, Steubenville, president; Anson McConnell, Steubenville, vice-president; and Leonard H. Bush, Steubenville, secretary-treasurer.

OBITUARY

Frederick Hoitt, 65, for 28 years secretary of the New England Road Builders Association, died June 25 after a brief illness. He had been secretary of NERBA since its organization in 1921. He was a director of the American Road Builders' Association, a member of the Massachusetts Bar Association and highway groups in Maine, New Hampshire and Massachusetts.

David H. Noonan, 66, died suddenly June 22 at his Saratoga Springs, N. Y., home. Previous to his retirement five years ago, Mr. Noonan had spent 38 years with the New York State Highway Department and predecessor organizations. In 1922, after 16 years laying out roads and serving as county maintenance deputy for two upstate counties, he became deputy state commissioner for maintenance. This job he held until his retirement. He became widely known for his knowledge of New York's road system and of highway and traffic problems. He was an honorary director of the Association of Highway Commissioners of the North Atlantic states.

Herbert S. Austin died of a heart attack July 5 at Easton, Md., while motoring to his Elizabeth, N. J. home. An authority on oil pipe line construction, Mr. Austin had been a consulting engineer in New York City since his retirement in 1940 as coordinator of Standard Oil Company of New Jersey pipelines. Before that, he had been President of The Tuscarora Oil Co., Ltd. After his graduation from Cornell in 1907 with a civil engineering degree, he had engaged in bridge and subway construction before entering pipeline work. He also had been consultant to the Army, Navy and the Petroleum Administrator for War. He had received several foreign decorations as a result of his contributions to oil field development abroad.

Raymond D. Johnson, 75, a consulting hydraulic engineer, died June 28 at Fort Lauderdale, Fla. A native of New York state, he had been awarded the American Society of Mechanical Engineers' Holley Medal, in 1947, and the Franklin Institute of Pennsylvania's Elliott Cresson Medal, the latter for invention of a hydraulic valve.

D. B. Porter, 63, president of the Porter-Trustin Co., a construction materials firm, died at his Omaha home July 1. He had been in the construction material business in Omaha for nearly 40 years.

Lewis Larkins Merritt, 61, a Wilmington, N. C. civil engineer, died June 29. Formerly connected with the Army Engineers, he was employed in 1929 to survey the right of way for the Inland Waterway from Little River, S. C., to Morehead City, N. C. He had worked also on Cape Fear River lock construction.

Dr. Ernest Brown, 71, for 12 years dean of the engineering faculty of McGill University, died June 24. A native of England and holder of three advanced degrees, he joined the McGill faculty in 1905. He was well known for pioneer work in the use of concrete for structural work and for research in the design of hydraulic turbines. He was an honorary member of the Engineering Institute of Canada, and a member of the Corporation of Professional Engineers of the Province of Quebec.

Benjamin F. F. Needham, 54, formerly a New Jersey contractor, died at his Lexington, Ky., home June 26. At one time, Needham played a part in construction of the George Washington Bridge. For almost a decade, he had lived at Lexington.

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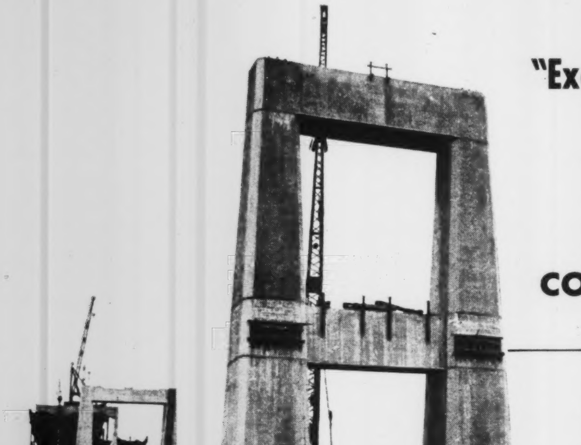
P. O. Box 2119, Houston, Texas, U. S. A.



"Excellent Surface Uniformity"

contractor says of results obtained with the NEW

PLYFORM

CONCRETE FORM PANELS

THE NEW PlyForm grade concrete form panels were used on the piers of this two-mile bridge spanning Mystic River at Boston, Massachusetts. Mr. Thomas Corcoran, project construction engineer for the Gahagan Construction Company of New York and Boston reports: "The new PlyForm gave us very good results. Surface uniformity was excellent, and the panels stood up under repeated re-use. Finishing time was materially reduced."

The Mystic River Bridge is being erected under direction of the Mystic River Bridge Authority, created by the Massachusetts legislature. Consulting engineers for the Authority are the J. E. Greiner Co. of Baltimore and C. A. Maguire & Associates, Providence and Boston. Companies involved in construction are the Allied Engineering Corp. of Boston, the M & R Construction Co. of Boston, the Merritt Chapman & Scott Corp. of Boston and New York, the V. Bartletta Co. of Boston and the Gahagan Construction Co., Boston and New York.

GENUINE
DOUGLAS FIR PLYWOOD
PLYFORM
CONCRETE FORM PANEL
INTERIOR-TYPE GRADE B-B
D.F.P.A.
INSPECTED

PLYFORM — the multiple re-use concrete form panel of Douglas fir plywood — is now manufactured in strict accordance with the new grade specifications set forth in U. S. Commercial Standard CS45-48. Both faces are of B (Solid) veneer — smooth and firm, meeting virtually all concrete requirements.*

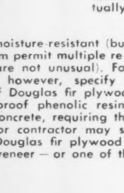
Outstanding advantages offered by the NEW PlyForm include:

- PlyForm forms may be re-used again and again; they're more economical.
- PlyForm produces smooth surfaces, reducing finishing time and cost.
- PlyForm panels are strong, rigid — yet light and easy to handle.
- PlyForm's large panel size covers quickly, economically.
- PlyForm forms are puncture-proof, water and mortar tight.
- PlyForm offers superior nail-holding qualities.
- PlyForm is easy to work by hand or with power tools.
- PlyForm provides form sheathing and lining in one material.

* The highly moisture-resistant (but not waterproof) glues used in PlyForm permit multiple re-use of panels (as many as 10 to 15 are not unusual). For the greatest possible panel re-use, however, specify Exterior-type Concrete Form grade of Douglas fir plywood — bonded with completely waterproof phenolic resin adhesive. For special architectural concrete, requiring the finest possible finish, the architect or contractor may specify Exterior-type or Interior-type Douglas fir plywood in grades having "A" (Sound) face veneer — or one of the new plastic-surfaced panels.

Douglas Fir PLYWOOD

LARGE,
LIGHT,
STRONG



Real Wood

Panels

Booklets for You!

Two booklets: "The New PlyForm" and "Concrete Forms of Douglas Fir Plywood" are now available. They will help you gain the full advantages offered by Douglas fir plywood concrete form panels. Write the Douglas Fir Plywood Association office nearest you: Tacoma Building, Tacoma 2, Washington; 848 Daily News Building, Chicago 6; 1232 Shoreham Building, Washington 5, D.C.; The 500 Fifth Avenue Building, New York City 18.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

July 20

Ga., Valdosta—City, pump house and installing well pumps and accessories for WW sys. imprvs. Smith & Gillespie Roberts Bldg., Jacksonville, Zone 1, engrs.

July 22

Tex., Grapevine—City, Gordon Tate, mayor, Grapevine, WW imprvs., addns. $30,000. Plans deposit $10. Freese & Nichols, 407 Danciger Bldg., Wort Worth, engrs.

Tex., Texas City—Galveston Co. Water Control & Imprv Dist. 4, Texas City, WW imprvs., incl. gravel wall water well and pump, 100,000 gal. steel surface storage tank, waterline extens. on north and south sects., water pump and electric generator. $50,000. Plans deposit $15. Joe J. Rady, 811 American Fidelity Bldg., Fort Worth, engr. CD 6/22.

July 26

Calif., Ione—State Div. Architecture, P. Wks. Bldg., Sacramento, concrete pipelines at Preston School of Industry, Anson Boyd, state archt. CD 5/10, under LB.

LOW BIDDERS

Calif., Redwood City—San Mateo Co., Courthouse, June 24, watermains, pump house, etc. for County Juvenile Home add Relief Home, from Valley Trenching Co., 215 Broadway, Fresno, **$29,166.**

Tex., Brenham—City, cancelled bids to have been opened June 25, water treatment plant. **$120,000.** CD 5/27.

CONTRACTS AWARDED

Tex., Fort Worth—City, City Hall, addnl. waterlines, force account. **$40,000.** CD 5/5/44.

N. S., North Woodside (Postal Dist. Halifax)—Halifax Co., Law Courts, Halifax, watermains, to Standard Paving Maritimes Ltd., Lady Hammond Rd., Halifax. **$50,000.** Bids 5/10. CD 5/4.

Que., Cote St. Luc (Postal Dist. Montreal)—Canadian Pacific Ry. Co., J. E. Armstrong, ch. engr., Windsor Station, Montreal, water and sewer connections, Freight Terminal Yards, to H. J. McFarland Constr. Co., Inc., 21 Elizabeth St., Picton, Ont., **$250,000.** Bids 5/9. J. J. Richardson, c/o owner, engr. CD 5/2.

SEWERS, WASTE DISPOSAL

BIDS ASKED

July 22

Tex., Grapevine—City, Gordon Tate, mayor, Grapevine, sewerage sys. imprvs., addns. $50,000. Plans deposit $15. Freese & Nichols, 407 Danciger Bldg., Fort Worth, engrs.

July 26

Calif., Los Angeles—Bd. Supervs. Los Angeles Co., 501 Hall of Records, 4.5 mi. sanitary sewers in Ralph St., Rosemead. $99,350. C. E. Arnold, co. engr. and surv. CD 6/16.

Ky., Louisville—Louisville and Jefferson Co. Metropolitan Sewer Dist., 414 W. Jefferson St., Contr. 68-A, Manslick Ave. Main Sewer. Plans deposit $50. Morris Forman, ch. engr., adv. ENR 7/14.

July 27

Calif., Oakland—East Bay Municipal Utility Dist., 512 16 St., sewer outfall, land and subaqueous sections, Spec. SD-20, approx. $50,000. John Longwell, ch. engr. CD 11/13/46.

CONTRACTS AWARDED

Calif., Pasadena—City, sanitary sewers in Hermosa St., to Bebek & Brkich, 5025 E. Slauson St., Los Angeles, **$95,712.** Bids 6/21, awarded 6/28.

D. C., Wash.—Dist. Comrs., District Bldg., Emerson St. Storm Sewer, Sect. 2 and South Dakota Ave. Sanitary Sewer, N. E., to Leo Butler Co., 8416 Georgia Ave., Silver Springs, Md., **$693,152,** Bids 6/13, awarded 6/29. CD 6/17, under LB.

Ga., Waycross—City, sewerage sys. addnl. imprvs., own forces. **$75,000.** Clarence Edson, c/o owner, City Hall, engr.

Que., Dorval — Town, J. H. Lalonde, secy., Town Hall, collector sewer from Lake St. Charles, George V. Neptune Blvd., to Frank Ross Constr. Ltd., 736 Cote St., Catherine Rd., Montreal, Approx. **$550,000.** CD 6/20, under LB.

BRIDGES

BIDS ASKED

On or About July 21

†Georgia—U. S. Eng., P.O. Box 1169, Mobile 7, Ala., substructure and approaches for Allatoona Creek Crossing, Bethany Rd., Bartow Co., Serial No. CIVENG 01-076-50-3.

July 22

Wis., Watertown—City, Watertown, one 50 ft. span, rein.-con. bridge over Silver Creek at N. Water St. Plans deposit $5. Charles S. Whitney, 724 E. Mason St., Milwaukee, Zone 2, engr.

LOW BIDDERS

Connecticut — State, G. Albert Hill, hy. comr., Hartford, June 27, 70 ft. span composite beam type bridge over Shepaug River, Rt. 47, Fed. Aid Proj. from Oneglia & Gervasini, Inc., Casson Ave., Torrington. **$76,162.** CD 6/17.

Georgia—State Hy. Dpt., Atlanta, cancelled bids to have been opened June 24, 4 bridges in vicinity of Cairo, ER-F-1 and ER-F-2, Grady and Mitchell Counties. CD 6/17.

Maryland—State Hy. Dpt., Baltimore, June 28, treated timber pile bridge over Slaughter Creek, connecting Taylors Island, with State Rt. 16, mainland, b. conc. 0.22 mi. approaches, Contr. D 102-1-115, from John D. Sheets Constr. Co., Halethorpe, **$219,247.** CD 6/15.

Missouri—State Hy. Dpt., Jefferson City, June 23, from M. E. Gillioz, Monett, two 30 ft. and two 45 ft. one 55 ft. rein.-con. deck girder span bridge, over Missouri Pacific R.R., Proj. F 84 (5), Sta. 101 plus 76, **$78,374;** two 67 ft., two 53 ft. I-beam span bridge over Missouri Pacific R.R., Proj. F 81 (4) Sta. 54 plus 05, **$67,758;** for 45 ft. I-beam span, two 56 ft. and one 80 ft. continuous I-beam span bridge over Center Creek, Proj. J 81 (4) Sta. 74 plus 90, **$122,057,** all foregoing Jasper Co.; two 55 ft., two 70 ft. continuous I-beam span bridge over Shoal Creek, Proj. S 352 (1) Sta. 70 plus 64, Newton Co., **$51,326*****from Fred Weber Contractor, Inc., 7929 Alabama St., St. Louis, two 30 ft., three 20 ft. rein.-con. slab span bridge over Wabash R.R., Proj. F 573 (4) Sta. 426 plus 50, St. Louis Co., **$50,851.** CD 6/13.

Mont., Chester—Liberty Co., Chester, June 24, steel suspension bridge across Marias River, from Walter Mackin & Son, 1145 N. 30 St., Billings, **$62,028.** CD 6/8.

Nebraska—State Dpt. Road & Irrigation, Lincoln, June 16, bridge, FA-F-321, Pender-Emerson, Thurston Co., from Condon-Cunningham Co., 4229 Lafayette St., Omaha. **$95,926.** CD 6/8.

●New Jersey—State Hy. Dpt., Trenton, June 30, double leaf bascule span and 8 fixed spans, of superstructure of Manasquan River Bridge, Rt. 35, Sect. 40 between Brielle and Point Pleasant Beach, FAP No. U-59 (4), Monmouth and Ocean Counties, from American Bridge Co., 71 Broadway, New York, N. Y., **$1,623,212.** CD 6/6; overpass at Greenwood Ave. connection on Rt. 26 Exten. Fed. Proj. UI-190 (3), Mercer Co., from Franklin Contg. Co., 12 Central Ave., Newark, **$244,681.** CD 6/15.

North Carolina—State Hy. & Pub. Wks. Comn., Raleigh, June 28, structures N. C. 26, between Red Hill and Tennessee State Line, Proj. 8561, Mitchell Co., from Neal Hawkins, Box 548, Gastonia, **$85,422,** est. $75,000-$100,000***structures 3.66 mi. from point on N. C. Route 49, approx. 1 mi. west of Asheboro, east to south edge of Town, then to point on U. S. Route 64 east of Asheboro, Proj. 5842, Randolph Co. from Kirchin Constr. Co., Fayetteville, **$60,487,** est. $50,000-$75,000. CD 6/17.

Ohio—State Hy. Dpt., Columbus, cancelled bids to have been opened June 21, Bridge No. SC-239-08, 1.001 mi. Type T-35, S.R. 239, Scioto Co.

Oregon—State Hy. Dpt., Salem, June 28, Ferry Street Bridge, 2 span 442 ft., continuous steel truss bridge, 7 rein.-con. approach spans with total length of 354 ft., over Willamette River on Coburg Rd., in Eugene, Lane Co., from Tom Lillebo, Reedsport, **$447,885;** Dewey Ave. grade separation on Baker-Unity Hy. in Baker, Baker Co., from Valley Constr. Co., 6100 N. E. Columbia Bldg., Portland, **$434,548.** CD 63/.

CONTRACTS AWARDED

Georgia—State Hy. Dpt., Atlanta, bridge, approaches on Atlanta-Marietta Rd., F-371 (2), Fulton and Bobb Counties, Contr. 1, to E. A. Hudsons Sons, Bolton, **$90,305*****Contr. 2, to W. J. Tidwell, Jr., Douglasville, **$189,710** ***underpass and approaches at Atlantic Coast Line R.R. on Carswell Ave., Waycross, U-388 (1), Ware Co., to Espy Paving & Constr. Co., 108 E. Bay St., Savannah, **$303,051.** Grand total $583,066. Bids 6/24. CD 6/17.

Ill., Kirkland—De Kalb Co. Hy. Dpt., Court House, Sycamore, concrete piles, steel superstructure bridge over Kishwaukee River, Hy. 72, to Shappert Eng. Co., Belvidere, **$65,000.** Awarded 6/13.

●Montana—State Hy. Dpt., Helena, 1,007 ft. steel, concrete bridge, across Missouri River, and 1,085 ft. steel, concrete railroad overpass, Cascade Co., to Roy Anderson Co., 2300 9 Ave. N., Great Falls, **$1,174,129.** Awarded 6/29.

●Ohio—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, 4.59 mi. Type T-71, U. S. Rt. 40, Bridge No. BE-40-05, Belmont and Guernsey Counties, to H. W. Holt & Son, 998 W. Mound St., Columbus, Zone 6, **$1,098,852;** Bridge No. 53-2-4, 0.12 mi. Type T-35, C. H. 53, S-459, Summit Co., to C. P. Calaway, 1220 Madison Ave., Toledo, **$78,418.** Bids 6/21. CD 6/8.

Tex., Dallas—Dallas Co. Courthouse, concrete, timber bridge reconstruction, Precinct 1, own forces. **$90,000.** CD 6/22.

West Virginia—State Road Comn., Charleston, steel plate girder spans, two at 127.5 ft., two 160 ft. on concrete substructure, Hughes Bridge 1782 and approaches over Gauley River, incl. macad. base and road mix surf. U. S. Rt. 19, FASP S-253 (2), Nicholas Co., to Keeley Constr. Co., Clarksburg, **$364,656.** Bids 6/21, awarded 6/22. CD 6/9.

STREETS AND ROADS

BIDS ASKED

July 20

Ia., Hampton—Franklin Co., Hampton, grav. county roads, bridge. $60,000. C. P. Rudisill, co. engr.

LOW BIDDERS

Alabama—State Hy. Dpt., Montgomery, June 24, base and tr. 5.54 mi. road from Elkmont to Tenn. State Line, S-191 (2) Limestone Co. and base, surf, tr. plant mix surf. 8.53 mi. Double Springs-Cullman Rd., Winston Co., from Floyd S. Milford, 1412 S. 13 St., Birmingham, **$82,492** and **$76,577** respectively***base and surf. tr. plant mix surf. 10.706 mi. Coatopa-Belmont Rd., Sumter Co., S-223 (1), Sumter Co., from A. L. Crow, 2718 16 Ct. N., Birmingham, **$58,028*****imprv. AFP-19-B, Part 2, Winston Co., from Dunn Constr. Co., First Natl. Bank Bldg., Birmingham, **$76,370.** CD 6/15.

Connecticut—State, Albert Hill, hy. comr., Hartford, June 27, b. conc. 10,293 lin. ft. Norwich-Willimantic Rd., Rt. 32 and 87, Norwich-Franklin, from E. Foster Hyde, Ellington, **$207,181;** two 24 ft. rein.-con. pavement and b. conc. 8,990 ft. Portland-East Hampton Rd., U. S. Rt. 6-A Portland, from D. Arrigoni, 605 Main St., Middletown, **$294,403.** CD 6/17.

Ga., Atlanta—Fulton Co. and City, Atlanta, June 28, West Fulton By-Pass, from M. J. Carroll Contg. Co., Leesburgh, Fla., **$623,150.**

Louisiana—State Hy. Dpt., Baton Rouge, June 29, from Carruth Contg. Co., Louisiana National Bank Bldg., Baton Rouge, grav. base course, bit. surf. tr. 3.35 mi. streets, Marksville, S. P. 143-01-05 and 805-31-02, 805-32-03, **$71,626;** aggregate type base course, bit. surf. tr. Plaucheville-Cotton Port Hy. State Routes 92 and 92D, S. P. S. 147-03-05, 147-04-05 and 374-01-04, **$129,481** both Avoyelles Parish; aggregate type base course, soil cement base course, bit. surf. tr. 7.042 mi. Hymel Batree

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
●	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

Hy., State Route 30, St. James Parish, **$214,046*****from Wells Contg. Co., Natchitoches, grav. base course, bit. surf. tr., etc., 11.55 mi. Dodson-Sikes Hy., State Rt. 110, S. P. 91-07-03 and 91-07-04, Winn Parish, **$176,535.** CD 6/6.

Maine—State Hy. Dpt., Augusta, June 29, but. macad. 0.179 mi. F. A. S. P. S 300 (5), Aroostook Co. and bit. grav. 1.72 mi. F. A. P. F-84(13), L Prospect, Oxford Co., from J. R. Cianchette, Pittsfield, **$55,409** and **$79,304** respectively***bit. grav. 2.094 mi. F. A. Proj. No. N. S. 300(4), K-2 Hamlin Plt'n., Oxford Co., from Donald J. McKay, Houlton **$84,456*****bit. grav. 1.335 mi. F. A. P. S 65 (1), Rumford, Oxford Co., from Thomas DeCenzo, Calais, **$57,178*****bit. grav. 1.197 mi. F. A. P. F 148 (8) "O" Rumford, Oxford Co., from Thomas W. Watkins & Son, Inc., Amesbury, Mass., **$98,466.** CD 6/17.

●**Maryland**—State Hy. Dpt., Baltimore, June 28, c. conc. 3.685 mi. dual hy., Contr. WO 253-1-115, Worcester Co., CD 6/22, and grading, drainage, surf, 3.466 mi. dual hy. S. P. AA 389-2-215, Anne Arundel Co., CD 6/15, from Nello L. Teer Co., Durham, N. C., **$947,116** and **$1,411,110** respectively.

●**Md., Baltimore**—Mayor and City Council, City Hall, June 29, Potee St. Exten. over Patapsco River, from McLean Contg. Co., 1301 Fidelity Bldg., **$1,397,200.** CD 6/15.

Mass., Boston—City, P. Wks. Dpt., City Hall, June 14, sheet asph. resurf. Colchester St., etc., from Walter Reed Corp., 1078 Boylston St. **$123,748.** CD 6/9.

Missouri—State Hy. Dpt., Jefferson City, June 24, from Perry McGlone Constr. Co., 1805 Grand St., Kansas City, Mo., c. conc. 0.355 mi. Rt. 275, Proj. U 123 (4), **$114,810*****from S. H Atkinson Paving Co., King Hill Bldg., and Land Constr. Co., 1207 S. 4 St., St. Joseph, c. conc. 3.1709 mi. Rt. 59, Proj. F 49 (8) A, **$138,611;** c. conc. 4.222 mi. Rt. 59 Proj. F. 49 (8) B **$180,582;** c. conc. 2.732 mi. Rt. 59, Proj. F 49 (8) C, **$96,885*****from W. J. Menefee Constr. Co., Sedalia, c. conc. 0.369 mi. Rt. 275, Proj. F G. 123 (2) B, **$52,094;** c. conc. 1.022 mi. Rt. 275, Proj. F 123 (3), **$212,984,** all foregoing Buchanan Co.***from Cameron Joyce & Co., Keokuk, Ia., c. conc. 4.216 mi. Rt. 5, Proj. F 331 (8), **$291,819;** c. conc. 0.995 mi. Rt. 5, Proj. F 95 (3), **$62,096;** c. conc. 0.751 mi. Rt. 5 Proj. F 292 (4), **$75,492,** all foregoing Howard Co.***from M. E. Gillioz, Monett, c. conc. 4.125 mi. Rt. 66, Proj. F 81 (4), **$414,247;** c. conc. 1.562 mi. Rt. 66, Proj. F 84 (5), **$137,859,** both Jasper Co.***from Henry L. Perkinson Constr. Co., 132 E. Douglas St., St. Louis, c. conc. 0.595 mi. Rt. SBB, Proj. S 889 (1), **$106,786*****from Fred Weber Contg. Inc., 7929 Alabama St., c. conc. 1.343 mi. Rt. 115 TR Proj. F 573 (4), **$364,040,** both St. Louis Co.***from Trinidad Asphalt Mfg. Co., 600 St. Teresa St., St. Louis, Mo., c. conc. 1.779 mi. Rt. 21, Proj. F 375 (7), C, **$52,981;** c. conc. 3.494 mi. Rt. 21, Proj. F 375 (7) A, **$69,728;** c. conc. 3.506 mi. Rt. 21, Proj. F 375 (7) B, **$65,567,** all foregoing Washington Co. CD 6/13.

Nebraska—State Dpt. Roads & Irrigation, Lincoln, June 16, bit. sand surf. course, armor coat, etc., 0.3 mi. and 6.7 mi. FA-S-284, Merriman South, Cherry Co. and seal coat, bit. mat. surf. course, etc. 5.5 mi. FA—S-88, Eli north and south, Cherry Co., from Roberts Constr. Co., 1018 Trust Bldg., Lincoln, **$89,064** and **$97,030** respectively. CD 6/8.

✦**N. M., Albuquerque**—U. S. Eng., P. O. Box 1538, June 18, roads and utilities for AEC Housing, Stage IV, Serial No. 291-49-99, Lot 1, from A. F. Denison, Albuquerque, **$251,116.** CD 6/9.

✦**N. M., Albuquerque**—U. S. Eng., P. O. Box 1538, June 23, construct and asph. pave addnl. roads, Sandia Base, Serial No. Eng-29-005-49-102, from J. W. Jones, Albuquerque, **$126,005.** Est. $85,000. CD 6/14.

✦**North Carolina**—Pub. Roads Admin., 1440 Columbia Pike, Arlington, Va., rejected bids May 24, rein.-con. tunnel lining, stone masonry portal, etc., Blue Ridge Parkway, Proj. 2-P5, Buncombe Co., L. B. **$131,440.** CD 5/31, under LB.

North Carolina—State Hy. & P. Wks. Comn., Raleigh, June 28, STBC, bit. or bit. conc. surf. 11.1 mi. from Polkville north 2.8 mi. on N. C. 26, from Boiling Springs Rd. to N. C. Route 120, from Hollis to Newhouse, from Bostic northwest 1.6 mi. Betterment Sect. 9-6-80-132, Cleveland and Rutherford Counties, and STBC, bit. or bit. conc. surf. course 12.4 mi. from Columbus, southeast 4.2 mi. from Forest City, southwest via Doggetts Store 3 mi.; from Sandy Mush Rd. southeast to U. S. 221 at Cliffside, Betterment Sect. 9-7-85-7, Polk and Rutherford Counties, from A. R. Thompson Contractor, Inc., 219 N. Main St., Rutherfordton, **$60,601** est. $50,000-$75,000 and **$66,870** est. $75,000-$100,000 respectively***bit. conc. binder and surf. course 4.3 mi. U. S. Route 158 from Oxford City limits to Vance Co. line, Betterment Sect. 5-6-45-128, Granville Co. and bit. conc. binder and surf. course 6.4 mi. U. S. Route 15, from Gate 2 to Camp Butner and running through Creedmore to Hester, Proj. 4330, Granville Co., from Brown Paving Co., Pineville Rd., Charlotte, **$225,999** est. $50,000-$75,000 and **$180,501** est. $175,000-$200,000 respectively***grading 3.6 mi. from point on N. C. Route 49 approx. 1 mi. west of Asheboro, east to south edge of town then to point on U. S. Route 64 east of Asheboro, Proj. 5842 Randolph Co., from A. B. Burton Co., Inc., Box 817, Lynchburg, Va., **$93,984** est. $100,000-$125,000***sand asph. base, surf. course or bit. conc. binder and surf. course 14.65 mi. from point on N. C. 24 in Warsaw, west and north along N. C. 24 and U. S. 117 to Wayne Co. Ie. Betterment Sect. 3-6-31-123; Codes 5900-316; 5900-308; 5900-322; 5900-311, Duplin Co., from Nello L. Teer Co., Inc., Box 1131, Durham, **$88,249** est. $100,000-$125,000***STBC, bit. or bit. conc. surf. course 13.3 mi. from N. C. 90 north to Smiths Store, from N. C. 16 west 2.7 mi., from Alexander Co. line to Bradford Cross Roads, Betterment Sect. 9-7-77-14, Alexander and Iredell Counties and bit. or bit. conc. surf. course 10 mi. from intersections with U. S. 70 south 3.6 mi.; from intersections with N. C. Route 10 to 27 at Brookford, Betterment Sect. 9-7-79-24, Catawba Co., from E. H. Hines Constr. Co., Inc., Box 924, Greenwood, S. C., **$71,814** est. $75,000-$100,000 and **$66,019** est. $50,000-$75,000 respectively***PCSBC, bit. or bit. conc. surf. course 1.48 mi. from point on N. C. 751 east of Sandy Creek, north and northeast to point on Erwin Rd. in Durham, Proj. 5-201, Durham Co., from D. W. Winkelman Co., Inc., Box 2566, Greensboro, **$53,486** est. $50,000-$75,000***sand asph. base and surf. course 12.3 mi. from end of present 22 ft. concrete pavement to west end of PeeDee River Bridge in Anson Co.; from end of present 22 ft. c. conc. pavement to junction with U. S. 220 in Richmond Co., from point approx. 1 mi. south of Rockingham to point approx. 0.73 mi. north of South Carolina State Line, Proj. 6612-6643, Anson and Richmond Counties from Blythe Bros., Inc., 424 S. Brevard St., Charlotte, **$127,562** est. $150,000-$175,000. CD 6/17 and 6/20.

Ohio—State Hy. Dpt., T. J. Kauer, dir., Columbus, Zone 15, rejected bids June 21 1.252 mi. Type T-35, S. R. 159, Pickaway and Ross Counties, **$60,000;** bit. tr. 9.08 mi. Proposal 1. Licking Co. **$59,611;** 1.778 mi. Type T-35, U. S. R. 6, Erie Co. **$50,600;** 2.014 mi. Type T-35, U. S. R. 30N. Crawford Co. **$56,600.** CD 6/8.

Oregon—State Hy. Comn., Salem, June 27, grading, paving 5.2 mi. Newberg-McMinnville sect. Pacific Hy. West, FAP F-179 (6) and F-52 (8), Yamhill Co., from J. R. Taggart, Salem, **$414,346*****grading, surf., oiling 2.22 mi. Big Eggy-Dune sect. Columbia River Hy., furnish 1,600 cu. yd. crushed rock, FERP N1. ER-1-3 (1), Wasco Co., from Newport Constr. Co., Kern & Kibbee, 7031, N. E. Halsey St., Portland, **$200,000.** CD 6/10.

Oregon—State Hy. Comn., Salem, June 28, reoiling 19.36 mi. Redwood and Oregon Caves Hys., furnish 17,900 cu. yd. crushed gravel, Josephine Co., from J. C. Compton Co., McMinnville, **$101,861;** received no bids June 28, grav. 0.8 mi., oiling 6.74 mi. Grants Pass-Provolt-Jacksonville Proj. on 3 state highways, furnish 9,150 cu. yd. crushed material, Jackson and Josephine Counties. CD 6/10.

Pa., Bridgeport—Bridgeport Boro, received no bids June 17, paving various streets. Approx. **$50,000.** Will re-advertise. CD 5/31.

CONTRACTS AWARDED

California—State Div. Hys., Sacramento, c. conc. on cement treated subgrade 1.2 mi. Hollywood Parkway between Glendale Blvd. and Grand Ave., Los Angeles Co., to N. M. Ball, Sons, Box 403, Berkeley, **$938,108.** Bids 6/16. CD 5/23.

Georgia—State Hy. Dpt., Atlanta, wid'n. resurf. 8.137 mi. Fairmount-Cartersville Rd., F-018 (1), Bartow Co., to M. J. Carroll Contg. Co., Leesburg, Fla., **$257,106*****grading, paving, 1 bridge Ringgold-Lafayette Rd., S-86 (2), Catoosa and Walker Counties, to Southland Constr. Co., Toccoa, **$203,937*****grading, paving 1 bridge repairs 3.165 mi. on Eatonton-Sparta Rd. Putnam and Hancock Counties to Segars Constr. Co., Milledgeville, **$77,101.** Grand total $538,144. Bids 6/24. CD 6/17.

●**Illinois**—State Hy. Dpt., Springfield, c. conc. 8.59 mi. U. S. Rt. 12, Lake Co., to Arcole Midwest Corp., 3225 Main St., Evanston **$1,656,467.** Bids 6/24. Awarded 6/30. CD 6/28, under LB.

Ill., Chicago—City of Chicago, Dpt. Purchases, Contracts & Supplies, City Hall, paving W. 18 St. from S. Blue Island Ave. to S. Canal St., to Standard Paving Co., 30 N. LaSalle St., **$582,066.** CD 6/8, under LB.

●**Ill., Chicago**—City, Dpt. Purchases, Contracts & Supplies, City Hall, to Union Contg. & Eng. Co., 2035 W. 43 St., paving W. Belmont Ave. from N. Central Ave. to N. Cicero St., **$253,036;** N. Cicero Ave. to Pulaski Rd., **$252,788;** N. Pulaski Rd. to N. Kimball St., **$194,184*****to White Consolidated Inc., 1735 W. Fullerton St., paving W. Belmont Ave. from N. Kimball St. to Western Ave., **$59,495;** from Western to Damen Aves., **$142,999;** from Sheffield, to Halsted Sts., **$68,994*****to Rock Road Constr. Co., 3915 N. Rogers St., paving W. Belmont Ave. from Damen Ave. to Sheffield Rd., **$325,077.** Grand total $1,296,573. Bids 6/8. CD 6/3.

●**New York**—Bureau Contracts & Accounts, Albany, 0.72 mi. Major Deegan Expressway, Contr. 1A, FA. MDE. 49-1, Bronx Co., to Poirer & McLane Corp., 33 W. 42 St., New York, **$2,296,641;** 1.17 mi. North Hempstead Turnpike, S. H., 9018, A. RC. 494-49, Nassau Co., to Nassau Constr. Co., Inc., and Frank Mascali & Sons, Inc., 69-34 51 Ave., Winfield **$549,864.** Bids 5/4. CD 5/9, under LB.

Ohio—State Hy. Dpt., Columbus, to Fenton Constr. Co., P. O. Box 310, Ashland, bit. tr. 23.07 mi. Proposals 1 to 6 inclusive, Holmes and Tuscarawas Counties, **$50,030;** bit. tr. 16.77 mi. Proposals 1 to 6 inclusive, Carroll and Tuscarawas Counties, **$65,525*****to The Shelly Co., Thornville, bit. tr. 23.47 mi. Proposals 1 to 5 inclusive, Guernsey and Noble Counties, **$98,456;** bit. tr. 24.65 mi. Proposals 1 to 4 inclusive, Guernsey and Muskingum Counties, **$59,783;** bit. tr. 31.73 mi. Proposals 1 to 6 inclusive Fairfield and Perry Counties, **$84,015*****to Walter Follmer, P. O. Box 173, Hamilton, bit. tr. 24.73 mi. Proposals 1 to 7 inclusive Butler, Clermont, Preble and Warren Counties, **$52,919*****to Highway Maintenance Co., R. F. D. 3, Athens, bit. tr. 19.17 mi. Proposals 1 and 2 Athens and Meigs Counties **$72,263*****to Ohio Road Imprvt. Co., Chamber Commerce Bldg., Columbus, 6.388 mi. Type T-35, U. S. R. 30, Stark Co., **$170,757*****to W. P. McCarren Co., Walhondling, 7.181 mi. Type B-11, 6.298 mi. Type B-113, S. R. 206 and S. R. 229, Coshocton and Knox Counties **$86,496*****to Charles S. Ratzlaff Constr. Co., N. Market St., McArthur, 0.179 mi. Type T-32 on B-11, S. R. 56, Bridge No. HO-56-131, Hocking Co., **$56,512.** Grand total $796,756. Bids 6/21. CD 6/8.

Oregon—State Hy. Comn., Salem, grading 3.06 mi. Forest Boundary-Jones Ranch sect. of Ochoco Hy., also remove slide material, FAP No. F-175 (6), Wheeler Co., to Leonard & Slate, Oregon, Ltd., 7805 S. W. 4 St., Portland, **$262,851.** Bids 6/28. CD 6/10.

Oregon—State Hy. Comn., Salem, surf. 4 mi., oiling 17.36 mi. Jamieson-Vale sect. John Day Hy., furnish 5,200 cu. yd. crushed material, Malheur Co., to D. F. McKenzie, Salem, **$104,446;** resurf. 5.32 mi. Veneta-Fisher road sect. Richardson-Eugene Secondary Hy., Lane Co., to Central Heating Co., Eugene, **$78,654.** Bids 6/27. CD 6/10.

●**Tennessee**—State Hy. Dpt., Nashville, wid'n., bit. materials resurf. 11.291 mi. State Hy. 11 from North City limits of Nashville and exten. through Goodletsville to junction of State Route No. 41, Davidson and Sumner Counties, to Eller & Olsen, 32 Ave. N. Nashville, **$897,567;** wid'n. bit. resurf. 23 mi. State Route 9 from La Follette to Jellico, 752-A and MP-178-A, Campbell Co., to Wesco Paving Co., Volunteer Bldg., Chattanooga, **$551,533.** Bids 6/17. CD 6/22; under LB.

Tex., Dallas—Dallas Co. Courthouse, road reconstruction, repairing, Precinct 4, **$125,000;** Precinct 5, **$110,000,** force account. CD 6/22.

Tex., Raymondville—Willacy Co. Courthouse, Raymondville, 1 1½ mi. road gap hardsurf. between Raymondville and Port Mansfield, to South Texas Constr. Co., 3610 Clinton Dr., Houston, **$120,000.**

West Virginia—State Road Comn., Charleston, road mix surf. 21.4 Bellington-Preston Co., Line Rd., (W. Va. Rte. 92), SP 3493 A, B and C, Barbour Co., to Keeley Constr. Co., Clarksburg, **$88,033*****road mix surf. 8.81 mi. Oak Hill-Kincaid Rd., Projs. 3692 and 3693, Fayette Co. to Acme Constr. Co., Beckley, **$51,999*****road mix surf. 13.6 mi. Hansford-Fayette Co. line, Projs. 297 and 5165 Kanawha Co., to Abbot Constr. Co., Charleston, **$52,289*****grading, draining, traffic bound base Type B and bridge, 4.457 mi. Clover Hollow-Rutledge Rd., Proj. S-524 (1), and traffic bound base Type B 2.508 mi. Bakers Ford Rd., Proj. S-524 (2), Kanawah Co., to Mills-Gorman & McAlister, Quinnimont, **$192,858** and **$113,643,** respectively***traffic bound base Type B and bridge, 2.827 mi. Skygusty-U. S. Coal & Coke Mine No. 14, Rd., Proj. S-585 (1), McDowell Co., to Harry Hatfield & Co., Barboursville, **$104,826*****traffic bound base Type B, 4.886 mi. Belva-Vaughan Rd., Proj. S-545 (1), Nocholas Co., to Sutton Co., Inc., Radford, Va., **$105,183.** Grand total $708,831. Bids 6/21, awarded 6/22. CD 6/9.

Wis., Milwaukee—City, City Hall, 200 E. Wells St., paving N. Sherman Blvd., to Ray J. Moths Co., 3901 W. Rohr Ave., Zone 9, **$87,287;** S. 2 St., to Badger Constr. Co., 229 E. Wisconsin Ave., Milwaukee, Zone 2, **$109,096.**

N. S., Halifax—Municipality, paving various streets, to Standard Paving Ltd., 7 Lady Hammond Rd., **$600,000.** CD 3/18.

Ont., Fort William—City, City Hall, paving various streets, to Warren Bituminous Paving Co., Neebing Ave. Approx. **$308,851.** CD 2/18.

Ont., Port Arthur—City, A. H. Evans, clk., City Hall, c. conc. paving, 1 section, hot mixed asph. paving 2 sects., to Hewitson Constr. Co. Ltd., 611 Public Utilities Bldg., and Tomlinson Bros. Ltd., 311 Public Utilities Bldg. Approx. **$405,000.** R. B. Chandler, c/o owner, engr. CD 4/18.

Ont., Sarnia—Lambton Co. Council, Sarnia, paving, repairs, maintenance of roads, own forces, **$109,000.** J. V. Monteith, Court House,

EARTHWORK, WATERWAYS

BIDS ASKED

July 21

✦**Illinois, Kentucky, Missouri, Tennessee and Arkansas**—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., minor repairs to revetments, banks of Mississippi River, between mouth of Cache River, Ill. (Mile 969 AHP) and Barfield, Ark. (Mile 814 AHP), Serial No. Eng. 40-041 49-164.

✦**North Dakota**—U. S. Eng., Fort Lincoln, Box 300, Bismarck, intake structure, Garrison Dam and Reservoir, Riverdale, Serial No. Eng-32-915-49-94. CD 5/24—ENR 5/26.

✦**Washington**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing del. f.o.b. cars shipping point or f.o.b. cars Odair, Wash., multiple-louver dampers, registers, grilles and air diffusers for ventilating sys. for Grand Coulee Pumping Plant, Columbia Basin Proj., Spec. 2717. L. N. McClellan, ch. engr.

LOW BIDDERS

●✦**Arizona**—Bureau Reclamation, Dpt. Interior, Yuma, June 28, earthwork, structures, Wellton-Mohawk Check and Turnout, Gila Gravity Main Canal, Station, 790 plus 9017,

(Continued on page 72)

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(Continued from page 70)

earthwork concrete, canal lining, structures, Wellton-Mohawk Canal, Station 1 plus 84.43 to Station 449 plus 00, Spec. 2688, from Fisher Contg. Co., S 19 Ave., Phoenix, **$1,335,464.** CD 5/31.

†California—U. S. Eng., 74 New Montgomery St., San Francisco, rejected bids June 23, dredging Petaluma Creek, Sonoma Co., Serial No. Eng., 04-203-49-163. L. B. **$117,100.** CD 6/30, under LB.

†Conn., New Haven—U. S. Eng., Bldg. 21, Naval Drydock South Boston, Mass., June 24, dredging, rock removal New Haven Harbor, Serial No. Eng. 19-016-49-101, from The Arundel Corp., Pier 3, foot Fulton St., Brooklyn, N. Y., **$148,939.** CD 5/23.

†Illinois—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis 1, Mo., rejected bids June 8, clearing, snagging McKee Creek, Pike Co., south and middle forks, vicinity Chambersburg and Perry, Pike Co., Serial No. Eng. 23-065-49-128. LB **$22,535.** Est. $16,700. Will re-advertise. CD 6/13, under LB.

†Illinois—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis 1, Mo., June 27, approx. 250,000 cu. yd. levee embankment, East St. Louis and vicinity, Proj. Item II-A (1), St. Clair Co., along east bank Mississippi River, between Miles 178.3 and 179.3, above mouth of Ohio River, Serial No. Eng. 23-065-49-141, from Joseph L. Pohl, Nev., **$153,090.** Est. $197,037.

†Ia., Decorah—U. S. Eng., 1217 U. S. Post Office and Custom House, St Paul 1, Minn., June 27, dry run diversion channel and upper Iowa River Channel and imprvs., Stage 3, from Otto B. Ashbach & Sons, 2975 Hamline Ave., St. Paul, Minn., **$507,334.** Est. $415,211. CD 6/13.

†Michigan—U. S. Eng., 609 Federal Bldg., Detroit, Zone 31, June 22, excavation cut off canal, concrete weir and appurtenant structures, vicinity Mount Clemens, Serial No. Eng. 20-064-49-83, from W. J. Meagher & Sons, Bay City, **$370,978.** CD 6/14.

†Missouri and Illinois—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis 1, Mo., June 27, levees, Grand Tower Drainage and Levee Dist., Jackson Co., Ill. and Perry Co. Mo., Serial No. Eng. 23-065-49-142, Proj. Item I-C (1), 465,000 cu. yd. levee embankment, 45,000 cu. yd. topsoil, 18 in. thick and 18 acres seeding and mulching, from Missouri Dredging Co., Continental Bldg., 3165 Olive St., St. Louis 8, Mo., **$211,995,** est. $171,597; Item I-C (2), 835,000 cu. yd. levee embankment and 60 acres seeding and mulching, from S. W. Hardwick, Beardstown, Ill., **$277,978,** est. $271,045. CD 6/13.

†N. M., Albuquerque—U. S. Eng., P.O. Box 1538, Albuquerque, June 22, landscaping and site development, Stage I and Stage III, Sandia Base, Serial No. 291-49-103, from Baker Bros., Albuquerque, **$141,535,** est. $40,000., CD 6/15.

†New York—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., furnishing, plant, labor, materials and equip. and performing work for constructing Portville Flood Protection Proj. Unit 1, Allegheny River, Portville, Inv. No. Eng. 36-058-49-135, from Carlo Bianchi & Co., Inc., 24 Union Ave., Framingham, Mass., **$379,217,** est. $483,552. CD 6/6.

†New York—U. S. Eng., 120 Wall St., New York, Zone 5, rejected bids, June 21, dredging except ledge rock from Great South Bay, Suffolk Co. CD 6/16.

†North Dakota—U. S. Eng., 1217 U. S. Post Office and Customs House, St. Paul 1, Minn., June 25, Baldhill Dam Stage 3, embankment closure sect., Sheyenne River, placing compacted earthfill embankment, protection stone, top soil and appurtenant work at Baldhill Dam Site, Sheyenne River near Valley City, Serial No. Eng-21-918-49-92, from H. B. Lien & Ray Werner, Wheaton, Minn., **$82,712.** Est. $94,043. CD 6/6.

Pennsylvannia—Dpt. Forests & Waters, 404 Education Bldg., Harrisburg, June 28, Tamaqua Desilting basin on the Little Schuylkill River below South Tamaqua, as part of Schuylkill Desilting Proj., Schuylkill Co., from James P. Leaming Co., Jenkintown, **$232,340,** est. $600,000. CD 6/10.

●†Pennsylvannia—U. S. Eng., 925 Federal Bldg., Pittsburgh, Zone 19, June 23, embankment and spillway, East Branch Dam, Inv. No. Eng. 36-058-49-134, from The Hunkin Conkey Constr. Co. and Shofner, Gordon & Hinman, 1740 E. 12 St., Cleveland, O., **$4,887,019,** est. $4,598,485. CD 5/25.

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, June 28, dredging approx. 2,450,000 cu. yd. materials tributary channel, Paso Real to 3 mi. below Paso Hondo, of Gulf Intracoastal Waterway via Arroyo Colorado, Inv. No. Eng-41-253-49-339, Willacy and Cameron Counties, from Atlantic, Gulf & Pacific Co., Citizens State Bank Bldg., Houston, **$285,663.** Est. $200,000. CD 6/14.

●†West Virginia—U. S. Eng., Madison Ave. and 8 St., Huntington, Zone 18, June 24, Local Protection Proj., Point Pleasant, Sect. 2, Serial No. Eng. 46-022-49-152, from Maxon Constr. Co., 121 N. Ludlow St., Dayton 2, O., **$1,373,000.** CD 6/1.

CONTRACTS AWARDED

†California—U. S. Eng., 74 New Montgomery St., San Francisco, dredging channel in Napa River between Mare Island Strait and Napa, Spec. 04-203-49-15, to Hydraulic Dredging Ltd., Central Bank Bldg., Oakland, **$764,010.** Bids 5/26. CD 6/1, under LB.

N. S. Neils Harbour—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater repairs, to H. J. Campbell, Inverness. Approx. **$82,850.** Bids 6/22. CD 6/6.

Ont., North Bay—Dpt. P. Wks., Hunter Bldg., Ottawa, dam and dredging canal at Big Chandiere Portage, French River, 18 mi. from outlet of Lake Nipising, to Canadian Dredge & Dock Co. Ltd., Harbour Comrs. Bldg., Toronto. Approx. **$152,217.**

AIRPORTS AND AIRBASES

BIDS ASKED

July 18

N. Y., Jackson Heights—ROOFING DOMESTIC TERMINAL—At office Chief Engineer Port of New York Auth., 111 8th Ave., New York, Zone 11, roof rehabilitation of domestic terminal at La Guardia Airport, Contr. LGA-24. Plans deposit $10.

July 19

N. Y., Jackson Heights—LIGHTING SYSTEM—At office Chief Engineer Port of New York Auth., 111 8th Ave., New York Zone 11, taxiway lighting sys. alterations, addns., Contr. LGA-25. Plans deposit $10.

July 26

Tex., Marshall—AIRPORT—Harrison Co., R. M. Nichols, judge, Marshall, airport imprvs., incl. driveway, runway, taxiway, apron, asph. paving; drainage; sanitary disposal; runway lighting; fencing. $152,368. CD 12/17/47.

SOON LETS CONTRACT

Wash., Richland—ELECTRICAL DISTRIBUTION, etc.—General Electric Co., Richland, soon lets contract electrical distr. lighting, telephone and fire alarm sys. in new central commercial area and lighting sys. for Atomic Energy Commission Airport. Approx. $50,000. Plans deposit $25.

LOW BIDDERS

†Calif., Point Mugu—RUNWAY, etc.—U. S. Naval Air Missile Test Center, Point Mugu, June 28, runway, taxiway and paved areas at U. S. Missile Test Center, Spec. 22687, from Griffith Co., 1060 S. Broadway, Los Angeles, **$998,700.** CD 6/9.

Minn., Crystal—AIRPORT IMPRVS.—Minneapolis-St. Paul Metropolitan Airport Comn., 2429 University Ave., St. Paul, June 23, airport imprvs., from Dirt Movers, 3936 W. 44 St., Minneapolis, Zone 10, **$70,482.** CD 6/16.

N. Y., Idlewild — WIRING, etc.—Port of New York Auth., 111 Eighth Ave., New York, Zone 11, June 29, furnishing, installing wiring and equip. for power and communications at New York International Airport, Contr. NYA-29 from Broadway Maintenance Corp., 47-47, 35 St., Long Island City, **$467,498.** CD 6/2.

CONTRACTS AWARDED

†Colo., Denver—BUILDINGS—U. S. Eng., 200 Railway Exchange Bldg., rehabilitation, repairing, constructing bldgs. at Buckley Field, Eng-05-016-49-8 Part 1, to Gassland Co., Inc., South York St. and Jewell Ave., **$64,183.**

†Idaho, Mountain Home—WATER SYSTEM—Dpt. of the Air Force, Pentagon Bldg., Arlington, Va., watermain sys., reactivated Air Force Base, to Intermountain Plumbing & Heating Co., Box 1652, Boise, **$131,445.** Bids 5/23.

Neb., Omaha—AIRPORT IMPRVS.—City, City Hall, airport imprvs., incl. exten. runway, taxiways, aprons, drainage to Peter Kiewit Sons Co., Omaha Natl. Bank Bldg., **$916,545.** Bids 5/24. CD 5/31, under LB.

●N. J., Newark—RUNWAY, etc.—The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., June 30, furnishing, placing fill for runways, taxiways at Newark Airport, Contr. NA-14, to Construction Aggregates Corp., 1 E. 42 St., New York 17, N. Y., **$7,209,600.** CD 6/2.

†Ore., Portland—AIRBASE IMPRVS.—U. S. Eng., 4735 E. Marginal Way, Seattle, Wash., rehabilitation Portland Air Force Base, incl. repairing 80 wooden bldgs., to Waale-Camplan, 2100 S. W. Jefferson St., **$540,348.** Bids 6/21. CD 6/27, under LB.

●†S. D., Rapid City—HANGAR, etc.—U. S. Eng., 1709 Jackson St., Omaha, Neb., hangar, apron, taxiways, apron, waterlines, drainage, sanitary sewers, Inv. No. 135, to Peter Kiewitt Sons Co., Omaha Natl. Bank Bldg., Omaha, Neb., **$1,755,658.** Bids 6/10. CD 6/16, under LB.

†Tex., Austin—HOUSING—U. S. Eng., 606 Santa Fe Bldg., Galveston, 80 housing units at Bergstrom Air Force Base, Serial No. Eng-41-243-49-299, to Lawless & Alford, Box 600, **$954,523.** Bids 6/21. CD 6/27, under LB.

●†Tex., Fort Worth—HOUSING, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, family type quarters for Carswell Air Force Base, near here, Eng. 41-243-49-298, to McCann Constr. Co., P. O. Box 2079, **$1,036,527.** CD 6/21, under LB.

†Tex., Randolph Field—HOUSING—U. S. Eng., Fort Sam Houston, (Sta. San Antonio), family housing units, Eng-41-243-49-296, to Zachry Co., Box 2570, San Antonio, **$879,974.** Bids 6/15. CD 6/20, under LB.

LATIN AMERICA

Argentina, Buenos Aires—Republic of Argentina, Buenos Aires, receiving bids, constructing 2 plants producing newsprint. Approx. $1,060,000.

PUBLIC BUILDINGS

BIDS ASKED

July 18

Que., Pointe aux Trembles—SCHOOL—Protestant Bd. School Trustees, F. McLearon, secy., Pointe aux Trembles, school addn., Approx. $325,000. Plans deposit $200. H. R. Wiggs, 1411 Crescent St., Montreal, archt. A. L. Perry, 1502 St. Catherine St. W., Montreal, engr. CD 2/11.

July 19

Ala., Athens — Athens Limestone Hospital Auth., c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, 60 bed hospital. CD 3/27/47.

†Arizona and Nevada—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Kingman, (Louise) and Prescott Ariz., Earp, Calif., and Boulder City, Nev., transmitter-receiver sets and relays, carrier-frequency cable, etc. for Davis Power Plant, Parker Power Plant, Prescott substation, Hoover Power Plant, Basic Magnesium substation, 400 lin. ft. coaxial, carrier-frequency cable for Prescott substation for Davis Dam and Parker Dam Power Systems, Davis Dam Proj., Spec. 2699. L. N. McClellan, ch. engr.

Calif., Norwalk—State Div. Architecture, P. Wks. Bldg., Sacramento, 1 story, rein.-con. laundry addns. at Norwalk State Home. Plans deposit $25. Anson Boyd, Sacramento, state archt.

Calif., San Jose—State Div. Architecture, P. Wks. Bldg., Sacramento, 1 story, rein.-con. womens gynasium addn. and swimming pool. Plans deposit $25. Anson Boyd, Sacramento, archt.

●Calif., Soledad—State Div. Hys., P. Wks. Bldg., Sacramento, rein.-con. Medium Security Prison. $9,527,000. Plans deposit $200. Anson Boyd, Sacramento, state archt. CD 5/31.

Calif., Yountville—State Div. Architecture, P. Wks. Bldg., Sacramento, 2 story, bsmnt. 30,000 sq. ft. rein.-con. barracks at Veterans Home. Plans deposit $25. Anson Boyd, Sacramento, state archt. CD 1/10.

Del., Oak Grove—SCHOOL—School Bldg. Comn., Oak Grove Dist. 30, Oak Grove, elementary bldg. Plans deposit $25. E. William Martin, 830 West St., Wilmington, archt.

Ia., Milford—POWER PLANT—City, City Hall, pawer plant imprvs., incl. plant addn., generating unit, conversion diesel engine, switchboard, $70,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, engrs.

†Ky., Louisville—Veterans Admin., Vermont Ave., between H. and I. Sts. N.W., Wash. 25, D. C., Hospital Bldg. 1, Managers Quarters bldg. 2, Apartment Bldg. 3, Nurses Quarters Bldg. 4, Attendants Quarters Bldg. 5, Station Garage Bldg. 6, Laundry Bldg. 7, Boiler House Bldg. 8, Radial Brick Chimney No. 9, Electric Meter House No. 15, Underground Wet Salt Storage Basins No. 16, Underground Soft Water Reservoir No. 17, etc., Proj. 2883. CD 4/18—ENR 4/22.

Mo., Caruthersville — SCHOOL — Caruthersville School Dist. 18, Pemiscot Co. Bd. Educ., Caruthersville, 1 story, 57x186 ft. and 54x94 ft. L shaped brick concrete school W. 16 and Ward Aves. Plans deposit $25. Bonsack & Pearce, Inc., 398 N. 6 St., St. Louis, Zone 1, archt.

New York—STREET and YARD IMPRVS.—New York City Housing Auth., 63 Park Row, New York, Zone 7, street and yard imprvs. for Todt Hill Houses (Proj. No. N. Y. C. 13), in area bounded by La Guardia Ave., Schmidt's Lane, Manor Rd. and Westwood Ave., Richmond Boro. Plans deposit $25. CD 3/18/48.

†Wyoming — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Casper, Wyo., switchgear assemblies, for installation in Kortes Power Plant, Kortes Unit, Missouri Basin Proj., Spec. 2698. L. N. McCellan, ch. engr.

July 20

Ga., Athens — HOSPITAL — Clarke Co., Athens, Athens General Hospital addns. $300,000. Plans deposit $25. C. Wilmer Heery, 128½ College Ave., archt. CD 3/3/47.

N. Y., New York—CENTRAL PLANT—Dpt. Wks., Municipal Bldg., Zone 7, general contract, plumbing, electrical work for power plant expan., phase D-Central Plant Bldg., on Welfare Island. Plans deposit $25. CD 11/14/46.

New York—TOP SOIL and PLANTING—New York City Housing Auth., 63 Park Row, New York, Zone 7, top soil and planting for Todt Hil Houses, Proj. No. N. Y. C. 13, in area bounded by LaGuardia Ave., Schmidt's La., Manor Rd. and Westwood Ave. Richmond Boro. Plans deposit $25. CD 3/18/48.

O., Bexley — LIBRARY — Bd. Trustees, Bexley Public Library, 2411 E. Main St., Bexley Public Library Addn. Benham, Richards & Armstrong, 167 E. State St., Columbus, Zone 15, archts.

Ore., Enterprise—HOSPITAL—Wallowa Co. Courthouse, 31 bed, 52x162 ft. and 44x132 ft. concrete block hospital. $300,000. Plans deposit $50. Roald Schmeer & Harrington, Spalding Bldg., Portland, archts.

July 21

Ala., Dothan—State Bd. Educ., Montgomery, trade school, $700,000. Plans deposit $50. H. L. Holman, Dothan, archt. CD 8/25/48.

†N. M., Las Cruces—ECHELON SHOP—U. S. Eng., P. O. Box 1538, Albuquerque, second echelon shop (NAV-99), White Sands Proving Ground, Serial No. Eng-29-005-49-113. CD 6/30

Okla., Lawton—HOSPITAL—Comanche Co., c/o Clerk, Lawton, Comanche County Hospital. $320,000. Paul Harris, Chickasha, archt. Wyatt Hedrick, Lawton, engr. CD 5/4.

†Washington — POWER PLANT STEEL — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point, or f.o.b. cars Odair, miscellaneous structural steel for Control Bay-R, Service Bay-RS and Units R-1, R-2 and R-3, Grand Coulee Power Plant, Columbia Basin Proj., Spec. 2724, L. N. McClellan, ch. engr.

July 22

Miss., Meadville—Franklin Co., Meadville, hospital. $295,000. E. L. Malvaney, Millsaps Bldg., Jackson, archt.

N. Y., Flushing—GARAGE—Bd. Transportation, 250 Hudson St., New York, Zone 13, furnishing, installing electric equip. for Flushing Bus Garage, Roosevelt Ave. between 123 and 126 Sts.

July 25

Ia., Ames — POWER PLANT — City, City Hall, Contr. 19, complete power wiring, municipal power plant. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo. engrs. CD 3/8.

July 26

†Ala., Tuskegee—Veterans Admin., Munitions Bldg., Wash. 25, D. C., 989,000 cu. ft. Bldg. 3, Veterans Administration Hospital addn. CD 8/9/46—ENR 8/29/46.

●Calif., Oakland — SCHOOL — Oakland Bd. Educ., 105 2 Ave. 2 story, 100x300 ft. rein.-con. Joseph C. Larey Trade and Technical Institute, 1 story auto shop bldg. $1,100,000. Plans deposit $25. E. Geoffrey Bangs, 605 Market St., San Francisco, archt. CD 1/16/46.

Miss., State College — State Bldg. Comn., New Capitol Bldg., Jackson, dormitory at Mississippi State College, E. L. Malvaney, Millsaps Bldg., Jackson, archt.

●Miss., University—State Bldg. Comn., New Capitol Bldg., Jackson, library at Uiversity of Mississippi, $1,000,000. R. W. Naef, Masonic Bldg., Jackson, archt.

†N. Y., Buffalo—U. S. Eng., Engineer Park, Buffalo, Zone 7, landscape development, Veterans Admin. Hospital Proj., Serial No. Eng. 30-023-49-52.

Tenn., Memphis — University of Tennessee, c/o Walk C. Jones-Walk C. Jones, Jr., archts., 1215 Poplar Ave., pathology bldg. at Memphis Branch of University of Tennessee. Approx. $300,000. Plans deposit $100. CD 11/9/48.

LOW BIDDERS

Calif., Berkeley—BUILDING—Bd. Regents University of California, Berkeley, June 28, Bevatron Bldg., from Pacific Coast Builders, 2530 18 St., San Francisco, **$714,207.**

Calif., Los Angeles — BUNGALOWS — Bd. Educ., 1425 S. San Pedro St., June 27, Central Group Classroom Bungalows, at 27 school sites and West Group Classroom Bungalows at 22 school sites from McDonald Bros., 2615½ S. LaCienega St., Los Angeles, **$315,750** and **$355,367** respectively.

●Conn., Hartford—HOUSING—City, Hartford Housing Auth., 846 Asylum St., June 24, 59 bldgs., 410 units, Housing Proj. MP-17, Granby St., from Associated Constr. Co., 1010 Wethersfield Ave., **$3,595,000.** CD 6/7.

●Conn., Milford—SCHOOL—Town, J. A. Foran, supt. Schools, Town Hall, June 20, 2 story, bsmnt. high school, incl. gymnasium, cafeteria, library, etc., Main and River Sts., from E. & F. Constr. Co., 94 Well St., Bridgeport, **$1,996,000** (site $79,000 extra); and from Grouge Constr. Co., 74 Goodsell St., Bridgeport, **$2,085,000** (site $98,000 extra). CD 5/18.

Fla., Quincy — HOSPITAL — Gadsden Co., Quincy, June 28, hospital, from S. J. Curry & Co., Albany, Ga., **$858,700.** CD 5/26.

N. Y., Brooklyn — HOUSE IMPRVS. — New York City Housing Auth., 63 Park Row, New York, Zone 17, June 29, streets and yards imprvs. and top soil and planting for Sheepshead Bay Houses (part of Proj. No. NYC-5) in area bounded by Avenue X, Batchelder St., Avenue V and Nostrand Ave., from Frank Mascali & Sons, Inc., 4634 Third Ave., New York, Zone 57, **$260,000.** CD 6/13.

●†N. M., Los Alamos—APARTMENTS—U. S. Atomic Energy Com., Los Alamos, June 15, 438 concrete, frame duplex apartments, appurtenances. Serial No. Eng-291-49-134, from Haddock Engineers Ltd., & Assoc., Sante Fe, **$5,505,760.** CD 6/1.

N. Y., New York—HOUSE IMPRVS.—New York City Housing Auth., 63 Park Row, Zone 7, June 28, street and yard imprvs. for Pelham Parkway Houses, Proj. No. NYC-8 in area bounded by Bronxwood, Astor, Wallace Aves., Williamsbridge Rd., Waring and Paulding Aves., Williamsbridge Rd., Mace and Bronxwood Aves., from Edenwald Contr. Co., 1061 E. Tremont Ave., Zone 60, **$311,874.** CD 6/9.

N. Y., New York—SCHOOL—Superintendent School Bldgs., Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, June 28, general contract P. S. 87 addns., Bussing, Edson and Grade Aves., fom Joseph Weinstein, Inc., 66 Court St., Brooklyn, Zone 2, **$477,000.** CD 6/3.

Tex., Dallas—JUVENILE HEADQUARTERS—Dallas Co., Al Templeton, judge, Courthouse, June 27, juvenile administration bldg., from Vivrett & Vivrett, Southland Life Bldg. Annex, **$564,449.** CD 6/14.

Tex., Houston—HIGH SCHOOL—Houston Independent School Dist., 1600 Washington St., June 30, masonry Stephen F. Austin High School, from James B. Dent, 350 Montrose St., **$483,600.** CD 6/10.

Tex., Nacogdoches — City, rejected bids June 21, doubling capacity municipal hospital. CD 5/26.

●Wash., Fort Steilacoom—WARD—State Dpt. P. Institutions, Olympia, June 28, completing male ward bldg. at Western State Hospital, from Macdonald Building Co., 1517 South Tacoma Way, Tacoma, **$1,260,338.** CD 6/6.

Wis., Jefferson — COURTHOUSE — Jefferson Co., Jefferson, rejected bids May 31, courthouse L. B. **$961,300.** CD 6/14, under LB.

CONTRACTS AWARDED

●Ala., Decatur—HIGH SCHOOL—City, Bd. Educ., Decatur, Junior-Senior High School, to Forcum-James Co., 1489 Thomas St., Memphis, Tenn., **$1,058,547.** Bids 6/16. CD 6/22, under LB.

Fla., Chattahoochee—HOSPITAL—State Bd. Control, Tallahassee, State Hospital addn., to Greenhut Constr. Co., 23 South A St., Pensacola, **$462,967.** Bids 6/27, awarded 6/28.

†Ga., Fort Benning—FAMILY QUARTERS—U. S. Eng., P. O. Box 1160, Mobile 7, Ala., family type quarters, to Williams Constr. Co., P. O. Box 1039, Columbus, Ga., **$752,820.** Bids 6/21. CD 6/29, under LB.

Ill., Oak Forest — NURSES HOME — Bd. Comrs., Cook Co., County Bldg., Chicago, 6 story, brick, rein.-con. stone nurses home, to E. H. Marhoefer Jr. Co., 505 N. LaSalle St., Chicago, Approx. **$820,500.** Bids 6/7. CD 6/17, under LB.

†Kan., Fort Leavenworth — PRINTING PLANT—U. S. Eng., 1709 Jackson St., Omaha, Neb., printing plant, Serial No. Eng. 25-066-49-230, to Martin K. Eby Constr. Co., 610 N. Main St., Wichita, **$797,009.** Bids 6/7. CD 6/13, under LB.

†Kan., Fort Riley—HOUSING—U. S. Eng., 1709 Jackson St., Omaha, Neb., family quarters, Serial No. Eng. 25-066-49-243, to Mont J. Green & Co., Manhattan, **$504,365.** Bids 6/14. CD 6/23.

Md., Annapolis — COURT HOUSE — Bd. Comrs. Anne Arundel Co., Court House, stone, brick, steel, concrete court house addns., alterations, to Mullan Contg. Co., 3945 Greenmount Ave., **$910,000.** Awarded 6/29. CD 6/29, under LB.

●†N. M., Albuquerque—HOSPITAL—Veterans Admin., c/o J. J. Rockefeller, Dir. of Constr., Munitions Bldg., Wash. 25, D. C., general contract 4 story approx 2,200,000 cu. ft. hospital addn., Bldg. No. 20 and Corridor No. 20-3, to Peter Kiewit Sons Co., 1950 S. Colorado Blvd., Denver, Colo., **$2,919,000.** Bds 6/7. CD 6/14, under LB.

†N. M., Los Alamos—AUDITORIUM—U. S. Atomic Energy Comn., Los Alamos, auditorium and appurtenances, Inv. 291-49-154, to Robert E. McKee, 1918 Texas Ave., El Paso, Tex., **$552,982.** Bids 6/23 CD 6/7.

●†N. M., Los Alamos — BUILDING — U. S. Atomic Energy Comn., Los Alamos, 132 Bldg. and faculties technical area, Inv. No. 291-49-151, to Robert E. McKee, Santa Fe, **$1,390,400.** Bids 6/14. CD 6/3.

●†N. M., Los Alamos—APARTMENTS—U. S. Atomic Energy Comn., Los Alamos, apartments, Serial No. 291-49-156, to Haddock Eng. Ltd., Box 1691, Santa Fe, **$1,616,989.** Bids 6/20. CD 6/3.

●N. Y., Flushing — SCHOOL — Supt. School Buildings, Design & Construction, 49 Flatbush Ave. exten., Brooklyn, Zone 1, general contract P. S. 177, 188 St. from 56 to 58 Aves., to Caristo Const. Corp., 26 Court St., Brooklyn, Zone 2, concrete, **$1,070,000.** Bids 5/18. CD 5/20, under LB.

●N. Y., Long Island City—HOUSES—New York City Housing Auth., 63 Park Row, Zone 7, general contract Sect. 1, boiler house and bldgs. Numbered 1 to 17 inclusive of Ravenswood Homes, Proj. NYC-20 in area bounded by 34 Ave., 24 St., 36 Ave. and 21 St., to Paul Tishman Co., Inc., 595 Madison Ave., New York, Zone 22, **$5,844,000*****heating and plumbing, to Caruso-Sturcey Corp., 10 Fisk Pl., Mt. Vernon, **$770,000*****plumbing, to Novak & Rehner, Inc., 623 Tenth Ave., New York, Zone 19, **$735,700.** Grand total $7,349,700. Bids 6/8. CD 6/13, under LB.

●N. Y., New York—HOUSES—New York City Housing Auth., 63 Park Row, Zone 7, general contract Lexington Houses, E. 98 St., 3 Ave., E. 99 St. and Park Ave., to Stein Constr. Co., & A. J. Contr. Co., 551 Fifth Ave., Zone 17, **$2,562,000.** Bids 5/24. CD 5/26, under LB.

N. Y., West New Brighton—SCHOOL—Supt. School Bldgs., Flatbush Ave. Exten., Brooklyn, Zone 1, P. S. 29 addn., Slosson and Victory Blvd., Richmond Boro, to Buhl Constr. Co., 45 W. 45 St., New York, Zone 19, **$399,200.** Bids 3/31.

●S. C., Spartanburg — HOSPITAL — Spartanburg General Hospital, Spartanburg, hospital addn., to McKay-Werry Constr. Co., Spartanburg, **$1,072,000.** Bids 6/9. under LB. CD 6/22.

●†**Tenn., Nashville**—FEDERAL—Pub. Bldgs. Admin., 18 and F Sts., N. W. Wash. 25, D. C., 8 story federal bldg., to Beers Constr. Co., 70 Ellis St., N. E. Atlanta, Ga., **$4,594,000.** Bids 3/11. CD 3/15, under LB.

●†**Tex., Camp Hood (P. O. Killeen)**—APARTMENTS—U. S. Eng., 606 Santa Fe Bldg., Galveston, 32 apartments, Inv. No. Eng-41-243-49-295, to J. W. Bateson Constr. Co., Irwin-Keasler Bldg., Dallas, **$2,719,626.** Bids 6/24. CD 7/5, under LB.

B. C., Victoria—HIGH SCHOOL—Greater Victoria School Bd., Victoria, Junior Senior High School, to Commonwealth Constr. Co. Ltd., 616 Hillside Ave., Approx. **$828,627.** Bids 4/1. CD 3/14.

●**B. C., Victoria** — OFFICE — Province of British Columbia, Parliament Bldgs., Victoria, 4 story, bsmnt., steel, concrete. U shaped, two wings office bldg., to Dawson & Hall, 775 Clark Dr., Vancouver, **$1,028,905.** Awarded 6/21. H. Whittaker, Parliament Bldgs., Victoria, archt.

Ont., Tillsonburg — SCHOOL — Tillsonburg Dist. High School Bd., B. Neale, secy., rein.-con. brick steel high school, to serve Tillsonburg, South Norwich, Middleham and Bayham Twps., to Foundation Co. of Ontario Ltd., 428 Richmond St., London. Approx. **$575,000.** Bids 6/61. CD 5/26.

Que., Lachute—SCHOOL—Lachute Protestant Bd. School Comrs., A. Taylor, secy., 2 story, bsmnt., steel, brick, stone high school, concrete fdns., to J. S. Hewson Ltd., 660 St. Catherine St. W., Montreal. Approx. **$465,000.** G. D. Thompson, 1241 Guy St., Montreal, archt. E. B. Plant, 2 Thurlow Rd., Hampstead, engr. CD 1/28/47, under Commercial Bldgs.

COMMERCIAL BUILDINGS

BIDS ASKED

July 19

Mass., Boston—Massachusetts Eye & Ear Infirmary, 243 Charles St., Boston, 5th floor addns., alterations to hospital. $500,000. Coolidge, Shepley, Bulfinch & Abbott, 1 Court St., Boston, archt. CD 2/18.

Wis., Madison—OFFICE—Credit Union National Assn., 1342 E. Washington St., 2 story, part bsmnt., native stone, brick office. $350,000. Plans deposit $20. Law, Law, Poter & Nystrom, 121 S. Pinckney St., archts.

July 26

Minn., New Ulm—DORMITORY—Dr. Martin Luther College, New Ulm, 2 story, bsmnt., L shaped bldg., 42x130 ft. wings, girls dormitory. $250,000. Plans deposit $15. Toltz, King & Day, 1509 Pioneer Bldg., St. Paul, archts. CD 3/14/45.

SOON LETS CONTRACT

Ala., Cullman—HOTEL—Cullman Development Co., c/o Van Keuren, Davis & Co., archts. American Life Bldg., Birmingham, soon lets contract hotel. CD 10/4/48.

Calif., Madera—Dearborn Hospital Bd. Trustees, 501 E. Yosemite Ave., Madera, soon lets contract 1 story, rein.-con. Dearborn Hospital addn. $300,000. Douglas D. Stone & Lou B. Mulloy, 619 California St., San Francisco, archts. CD 3/3/48.

Calif., Long Beach—CHURCH—First Baptist Church, 10 St. and Pine Ave., soon lets contract, 2 story rein.-con. church. $550,000. Kenneth S. Wing, 30 Linden Ave., archts. CD 2/10.

Fla., Tallahassee—SHOPPING CENTER—Mr. and Mrs. Frank Johnson, c/o James A. Stripling & Assoc., archts., Childs Bldg., soon lets contract 35,000 sq. ft. shopping center. Plans deposit $50.

Ind., Evansville—Evansville College, Outer Lincoln Ave., soon lets contract 3 story, 129x136 ft., brick, stone, rein.-con. steel McCurdy Alumni Memorial Union bldg. addns., Lincoln and Rotherwood Aves., $600,000. McGuire & Shook, 1400-01 Fletcher Trust Bldg., Indianapolis, archts. Bevington, Fowler & Taggart, 730 Indiana Pythian Bldg., mech. engrs. CD 4/18/47.

La., Metairie — CHURCH — Favrot & Reed, archts., 402 Nola Bldg., New Orleans, soon lets contract 44x124 ft., brick, stone church for Metarie Baptist Church, Metairie.

Mass., Boston—MUSEUM—Boston Museum of Science, 109 Chestnut St., soon lets contract (1st unit) museum, Charles St. River Dam, near Lechmere Bridge, Boston and Cambridge. Approx. $350,000. Ames, Child & Graves, 50 Beacon St., archt. R. M. Becker, 50 Beacon St., structural engr. CD 3/3.

Mass., Brockton—HOSPITAL—The Brockton Hospital Co., A. S. Orr, pres., Center St., soon lets contract hospital bldgs. addn., alterations, boiler plant, Center St. $800,000. Curtin & Riley, 45 Newbury St., Boston, archts. CD 11/24.

Mass., Springfield—SCHOOL and TEMPLE—Sinai Temple, 188 Summer St., soon lets contract 2 story, 114x153 ft., brick, steel, temple and religious school, Dickinson St. and Porter Lake Rd. $250,000. D. S. Gilman, 31 Hillman St., archt.

Neb., Omaha—St. Bernards Parish, 3601 N. 64 St., soon lets contract school. $260,000. Leo A. Daly, Insurance Exchange Bldg., Omaha, archt. CD 2/19.

●**N. Y., Buffalo**—Buffalo General Hospital, 100 High St., soon lets contract hospital addns., alterations, $4,000,000. Crow, Lewis & Wick, 200 Fifth Ave., New York, N. Y., archts. CD 10/21/48.

Pa., Phila.—CHURCH—Thomas J. Earley, archt., 1701 Walnut St., soon lets contract church for St. Hugh's R. C. Church, Mascher and Tioga Sts. Approx. **$250,000.**

Pa., Pottstown—The Hill School, Pottstown, dormitory soon lets contract. $300,000. W. G. Eccles Co., 223 E. Washington St., New Castle, archt. CD 2/25.

Tex., Dallas — DORMITORY — Buckner Orphans Home, U. S. Hy. 80, soon lets contract 2 story, 54x133 ft. dormitory, 2 story, 64x121 ft. guest center, masonry and brick, concrete slab fdn. $275,000. Broad & Nelson, 618 Reserve Loan Life Bldg., engrs. and archts. Zumwalt & Vinther, Mercantile Bank Bldg., mechanical engrs. CD 5/27.

Tex., Fort Worth — Broadway Baptist Church, 305 W. Broadway, soon lets contract church. $850,000. Wyatt C. Hedrick, 1005 First Natl. Bank Bldg., engr. and archt. CD 5/17, under LB.

Utah, Provo—HOSPITAL—Utah Valley Hospital, Provo, soon lets contract hospital alterations, addns. James G. Rogers, 219 E. 44 St., New York, N. Y., archt. CD 6/7.

Ont., Eastview (Ottawa)—J. S. La Fort, archt., 18 Rideau St., Ottawa, soon lets contract 3 story, bsmnt., brick, stone retreat house, Overbrook area, for Franciscan Sisters, Quebec City, Que. Approx. $250,000.

LOW BIDDERS

Conn., Putnam—HOSPITAL—Day-Kimball Hospital Bd. Trustees, 175 Pomfret St., 3 story, brick, steel, concrete hospital addn., Pomfret St., from A. F. Peaslee, Inc., 15 Lewis St., Hartford, **$648,492.** CD 6/1.

Minn., Sauk Center—HOSPITAL—Franciscan Sisters, Little Falls, June 28, general contract St. Michaels Hospital, from C. F. Haglin & Son, 123 Bryant Ave. N., Minneapolis, and from Peterson Constr. Co., 620 National Bldg., Minneapolis, identical bids. **$414,000.** CD 6/21.

●**Pa., Lancaster**—HOSPITAL—Lancaster General Hospital, 528 N. Lime St., June 29, general contract Lancaster General Hospital addns., alterations, from John H. Wickersham Eng. & Constr. Co., Lancaster, **$1,387,000.** CD 6/21.

Tex., Waco—HOSPITAL—Providence Hospital (Daughters of Charity of St. Vincent DePaul) Waco, June 2, 5 story, bsmnt. 155x169 ft. 110 bed concrete frame and fdn. hospital addn., from Cowdin Bros., 411 S. Haskel St., Dallas, **$980,000.** CD 5/27.

Wash., Pasco—HOSPITAL—Sisters of St. Joseph of Carondelet, Pasco, June 21, general contract 5 story 47x228 ft. Our Lady of Lourdes Hospital addn., from Strand & Sons, 3941 University Way, Seattle Zone 5, **$647,964.** CD 6/1.

CONTRACTS AWARDED

●**Ala., Birmingham** — HOSPITAL — Crippled Childrens Clinic, 2430 11 Ave. N., 100 bed orthopedic hospital, to Day & Richardson 429 24 St. S., **$1,276,000.** Bids 6/7, awarded 6/15. CD 6/15, under LB.

●**Ala., Birmingham** — HOSPITAL — St. Vincent's Hospital, c/o contractor, hospital annex, to Foster & Creighton Co., American National Bank Bldg., Nashville, Tenn., Approx. **$1,000,000.** CD 6/17, under LB.

●**Ariz., Ajo** — RESIDENCES, etc. — Phelps Dodge Corp., 40 Wall St., New York, N. Y., 101 residences, to Farmer & Godfrey Constr. Co., N. 36 St., Phoenix; 8 room school addn., cafeteria, office and laboratory, to William Peper Constr. Co., 3006 N. 16 St., Phoenix; change house at mine, to Stewart Constr. Co., 2547 W. Jackson St., Phoenx; 2 story Ajo Hospital wing to Daum & Donaldson Constr. Co., 24 St., Phoenix. Approx. **$1,000,000.**

Calif., Baldwin Park—Baldwin Park Manor Corp., 127 W. Ramona Blvd., 104 frame, stucco dwellings near Arrow and Main Aves., to Bell Constr. Co., 2961 Fairfax Ave., Los Angeles, **$451,600.**

Calif., Whittier—Kenbo Corp., 2301 Colorado Blvd., Los Angeles, 70 stucco dwellings and garages, to Kenneth P. Schmidt, 2301 Colorado Blvd., **$557,500.**

Conn., Thompsonville—CHURCH—St. Patrick's Roman Catholic Parish, Rev. W. P. Kileoyne, pastor, Torrington, rebuilding church Pearl and High Sts., to Standard Builders Inc., 53 Airport Rd., Hartford, **$480,000.** Contract reawarded. CD 4/20, under CA.

●**Del., Wilmington**—DEPARTMENT STORE—John Wanamaker, City Hall Square, Phila., Pa., department store, shopping center, etc. to John McShain, Inc., 17 and Spring Garden Sts., Phila., Pa., Approx. **$5,000,000.** Bids 6/23, CD 5/31.

Fla., Fort Lauderdale — HOMES — E. H. Barnes & Assoc., 4 N. Federal Hy., 100 homes. Owner builds. Approx. **$500,000.** J. B. O'Neill, 824 S.E. 6 Court, archt.

●**Ill., Chicago**—APARTMENTS—Julius Taxay & Assoc., 3400 N. Lakeshore St., nine 3 story, brick, steel apartments, incl. 204 units, College Grove Ave. between 84 and 85 Sts., to Robin Constr. Co., 1009 N. Wells St., **$1,700,000.** Shaw Metz & Dolio, 208 S. LaSalle St., Zone 4, archts.

Kan., Larned—HOSPITAL—St. Joseph Memorial Hospital, Community Hospital Comm., Inc., Larned, general contract hospital, to Busboom & Rauh, Salina, **$514,539.** Bids 6/7. CD 5/12.

Ky., Louisville—L. LeRoy Highbaugh & Sons, 509 W. Market St., 157 one-family houses, South Louisville, to L. LeRoy Highbaugh & Son, 509 W. Market St., **$471,000.**

La., New Orleans—HOUSES—Lauricella & Sizeler Constr. Co., 501 Jefferson Highway, 90 houses. Owner builds. Approx. **$500,000.**

La., New Orleans — INFIRMARY — Touro Infirmary, c/o contractor 6 story infirmary addn., to R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., **$815,000.** Bids 6/10. CD 6/20, under LB.

La., Shreveport—HOUSING—Linwood Development Corp., c/o Q. T. Hardtner, Jr., pres., Shreveport, 90 homes, force account, **$600,000.**

Mo., Ladue (St. Louis, Zone 5, P. O.)—HOUSING—Berkley Constr. Co., 8015 Forsyth Blvd., Clayton, St. Louis, Zone 5, 27 brick houses, Parklane Subdivision, Litzinger Rd., east of McKnight Rd., own forces, Approx. **$400,000.**

●**N. J., Fairview** — APARTMENT — Crestfair Apartments, Inc., 540 Cooper St., Camden, apartment development, Morgan and 8 Sts., to Whitmar Constr. Co., Crescent Blvd., at Airport Circle, Merchantville, **$1,300,000.** J. Raymond Knapf, 505 Cooper St., Camden, archt.

N. M., Albuquerque — CLINIC — Lovelace Foundation for Medical Research, Albuquerque, clinic, to Lembke Constr. Co., 1719 N. 5 St., **$663,054.** Bids 5/5. CD 5/2.

●**N. Y., Brooklyn** — HOSPITAL — Wyckoff Heights Hospital, St. Nicholas Ave. and Stanhope St., hospital addn., 374 Stockholm St., to John A. Bingham, 220 E. 41 St., New York, Zone 17. Approx. **$1,178,300.** Bids 6/7. CD 6/2.

N. C., Raleigh — APARTMENTS — Country Club Homes, Inc., c/o E. N. Richards, 701 Georgetown Rd., and Thomas Wilson, Security Bank Bldg., 40 apartments, on 15 acre site on Oberlin Rd. Owner builds. **$965,370.**

●**N. C., Raleigh**—HOUSING—Washington Terrace Apartments, c/o Leif Valand, archt., Capital Club Bldg., 276 unit Negro Housing, on 30 acre tract, Tarboro Rd. across from St. Augustine School to Longview Gardens Sect., to J. W. York Building Co., Capital Club Bldg., Approx. **$1,230,000.**

●**O., Cleveland**—HOMES—Vincent Constr. Co., 3561 Ludgate Rd., Shaker Heights, two hundred 1½ story, bsmnt, 26x29 ft. brick homes, 3310 etc. Brookdale Ave., separate contracts. **$2,000,000.**

Ore., Portland—APARTMENT—Ketell Constr. Co., Board Trade Bldg., two 6 story 36 unit apartments N. W. 22 and Davis Sts., to W. C. Smith, Board Trade Bldg., **$700,000.** Don Byers, Builders Exchange Bldg., archt.

●**Pa., Phila.** — RESIDENTIAL DEVELOPMENT—Owner, c/o general contractor, residential development, Byberry and Thornton Rds., to Morley Constr. Co., 225 S. 15 St., **$1,500,000.**

Pa., Scranton—STORE—F. W. Woolworth Co., 123 S. Broad St., Phila., store, separate contracts. **$425,000.**

Tex., Bellaire — DWELLINGS — Matthew Bros., 2904 Quenby St., 50 addnl. dwellings, Ayshire sub-division and W. University Pl. Owner builds. Approx. **$750,000.**

Tex., Dallas—SHOPPING CENTER—Carl M. Brown, 1350 Buckner Blvd., addnl. shopping center unit, Buckner Blvd. and Garland Rd. area, **$375,000;** 75 apartment units, in Casa Linde Addn. **$450,000;** own forces. O. R. Mc Elya, 4302 Somerville St., engr.

Tex., Dallas — DWELLINGS — Edward T. Dicker, 101 Laurel Land Rd., 150 dwellings, own forces. **$600,000.** CD 6/21/48.

Tex., Dallas—OFFICE—Great American Reserve Insurance Co., 715 N. St. Paul St., office, to J. E. Morgan & Sons, P. O. Box 6029, **$596,606.** Bids 6/17. CD 6/14.

Tex., Houston — APARTMENTS — Ayrshire Corp., 6625 Academy St., apartments. Owner builds. **$830,000.**

Tex., Houston—APARTMENT—Bellfontaine Apartments, Inc., 3200 Gramercy St., addnl. apartment units off Gramercy St. south side of street to McKenzie Constr. Co., 6221 Fannin St., Approx. **$750,000.** CD 6/22.

Tex., Houston—DWELLINGS—Helms-Carmichael Co., Stannard Pl. and Liberty Rd., 100 dwellings, own forces. Approx. **$650,000.** CD 6/23.

Tex., Houston — DWELLINGS — Roberts Constr. Co., Sunnyland Addn. Field office, 100 dwellings. Owner builds. Approx. **$500,000.** CD 6/27.

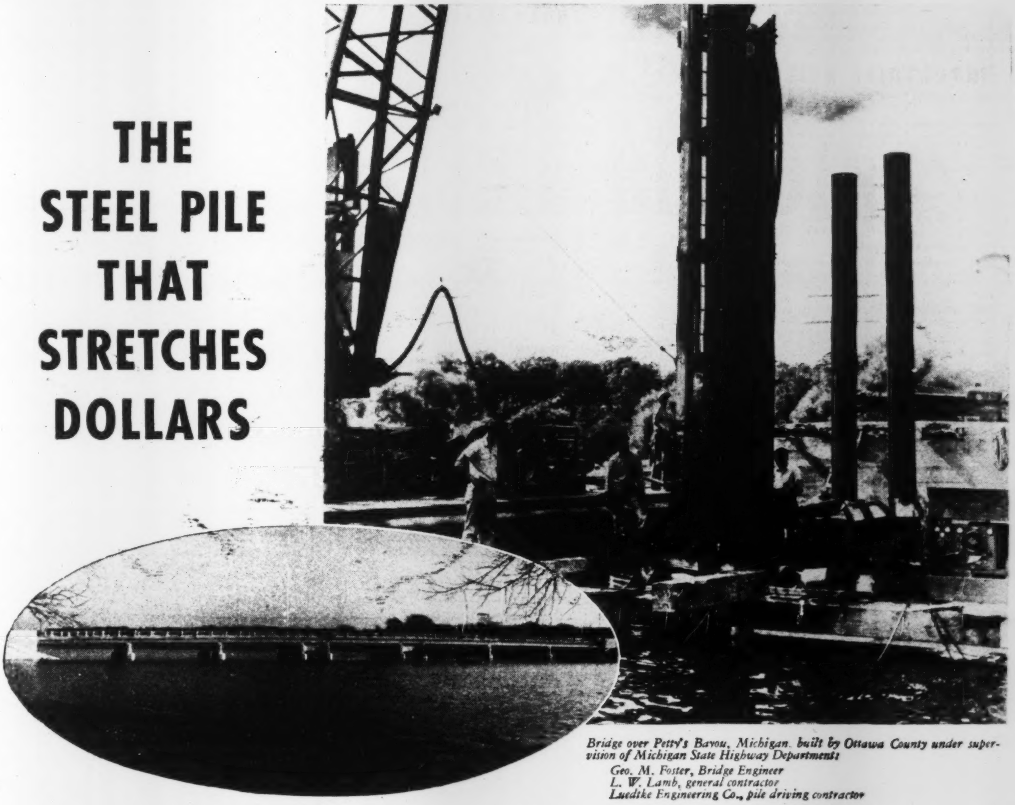
Tex., San Antonio — APARTMENT — Belmeade Corp., c/o Albert Steves, III, 716 E. Commerce St., 138 apartment units brick veneer Belmeade Apartments, concrete slab fdn. and frame. Hathaway Dr. in Belmeade addn., to Judson Phelps Co., Insurance Bldg., **$648,750.** Bids 6/21. CD 6/24, under LB.

●**Utah, Salt Lake City**—CHILDRENS HOSPITAL—Church of Jesus Christ of Latter Day Saints, 47 East South Temple St., 70 bed Primary Children's Hospital, to Jacobsen Constr. Co., 724 S. 3 East St., Approx. **$1,000,000.** Young & Hansen, Pacific Natl. Life Bldg., archts. CD 9/21/48.

Que., Montreal — SCHOOL — Catholic School Comn., 117 W. Ste. Catherine St., 65x400 ft., concrete, steel, brick school for Ste. Bernadette de Lourdes Parish, 16 Ave., to D'Amours &

(Continued on page 76)

THE STEEL PILE THAT STRETCHES DOLLARS



Bridge over Petty's Bayou, Michigan, built by Ottawa County under supervision of Michigan State Highway Department:
Geo. M. Foster, Bridge Engineer
L. W. Lamb, general contractor
Luedtke Engineering Co., pile driving contractor

MONOTUBE...extendible right on the job!

HERE'S another fine example of bridge building—and another where Monotube tapered steel piles saved construction time and costs.

8100 lineal feet of 7-gauge piles were driven. Piles varying in length from 90 to 105 feet were made up of 75-foot tapered sections and 20-foot uniform diameter extensions. These extensions were positioned and welded right on the job—without interfering with driving operations. Time was saved—labor costs reduced.

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UNION METAL

Monotube Foundation Piles

(Continued from page74)

Bros. Ltd., 2633 Bourbonniere St., Montreal, **$745,000.** Gascon & Parent, 934 E. Ste. Catherine St., archts. CD 9/9/47.

INDUSTRIAL BUILDINGS

BIDS ASKED

July 21

La., Gretna—GATE HOUSE, etc.—August Perez & Assoc., archts., Audubon Bldg., New Orleans, 2 story, 50x100 ft. brick, stone gate house, office, with two 1 story, 18x32 ft. wings, for Southern Cotton Oil Co., Gretna.

July 22

Tex., Austin — PRINTING SHOP — Von Boeckmann-Jones Co., 11 E. 9 St., printing shop. $120,000. Jessen, Jessen, Millhouse & Greeven, 112 E. 9 St., archts. CD 6/16.

SOON LETS CONTRACT

Ala., Dothan — MILL — Hedstrom Union Co., c/o G. Adolph Johnson, archt., 390 Main St., Worcester, 8, Mass., soon lets contract mill addns.

Ala., Mobile — PLANT — Rubberoid Co., 2400 Emogene St., soon lets contract roofing plant addn. $400,000. Chappell, Stokes & Brenneke, Burt Bldg., consult. engrs.

Ga., Columbus — WAREHOUSE — Muscogee Mfg. Co., c/o Robert & Co. Assoc., archts., 96 Poplar St. N.W., Atlanta, soon lets contract 2 story 75x100 ft. warehouse addn.

Minn., Roseau—WAREHOUSE, etc.—Roseau Electric Co-operative Roseau, soon lets contract 1 story, 50x90 ft. warehouse, office and garage. $68,000. E. B. Croft, 3453 Aldrich Ave. S., Minneapolis, archt., General Eng. Corp., 2850 Chicago Ave., Minneapolis, engrs.

Pa., Phila. — FACTORY — George W. Neff, archt., 1520 Locust St., soon lets contract factory for Globe Solvents Co. Inc., 7 St. and Fishers Ave. Approx. $150,000.

Pa., Phila.—FACTORY—Garner & Bauzenberger Assoc., archts., 10 S. 18 St., soon let contract factory for A. Olek & Son, Inc., 4757 Melrose Ave. Approx. **$68,000.**

Wash., Chehalis — WAREHOUSE — Lewis-Pacific Dairymens Assn., Chehalis, soon lets contract 1 story, 70x140 ft. and second story, 35x60 ft. rein.-con. warehouse addn. Approx. $68,000. G. W. Stoddard, 1213 Westlake Ave. N., Seattle, archt.

Wis., Black River Falls—GARAGE, etc.—Jackson Electric Co-operative, Black River Falls, soon lets contract 1 story, bsmnt. garage, headquarters, office bldg. Weiler & Strang, 114 N. Carroll St., archts. Bids 5/27, rejected. (**Correction—status**). CD 6/15, under CA.

Alaska, Kodiak—COLD STORAGE—Wohleb & Wohleb, archts., Olympia, Wash., soon lets contract 3 story, 111x176 ft., rein.-con. cold storage for Kodiak Ice & Cold Storage Co., Kodiak. Approx. $68,000. W. H. Witt Co., Lloyd Bldg., Seattle 1, Wash., engr.

LOW BIDDERS

Calif., San Francisco—WAREHOUSE, etc.—Leo J. Meyberg, 70 10 Ave., Class C wood frame, concrete warehouse and office, from Cahill Bros., 206 Sansome St., **$533,368.** CD 6/7.

CONTRACTS AWARDED

Calif., Los Angeles—WAREHOUSE, etc.—Graybar Electric Co., 201 Santa Fe Ave., 2 story 80,000 sq. ft. warehouse and office, to Wm. Simpson Constr. Co., 816 W. 5 St., Los Angeles, **$485,209.**

O., Toledo—WAREHOUSE—Owens-Illinois Glass Co., Libbey Glass Div., Ohio Bldg., 2 story, 188x200 ft., concrete, steel warehouse addn., to George Lathrop & Son, 1510 Montcalm St. Approx. **$315,000.** CD 2/17.

Tex., Dallas — PLANT — Peter Paul, Inc., 6124 Denton Dr., candy mfg. unit, own forces. **$240,000.**

Tex., Dallas—PLANT—Rounds & Porter Co., Hines and Shorecrest Sts., wholesale sash and door mfg. plant, own forces. **$300,000.**

●**Tex., Houston**—REPAIR SHOP—Katy Park Industrial Development Corp., 1st. Natl. Bank Bldg., mechanical repair shop, to O'Rourke Constr. Co., 4011 Koeherl St., **$2,500,000.** CD 5/20.

Wash., Seattle — PLANT — Bemis Bag Co., 65 Atlantic St., design and construction 40x165 ft. bag plant addn., to The Austin Co., 16112 Euclid Ave., Cleveland, O., Approx. **$200,000.**

Wash., Seattle — STOREHOUSE, etc. — Northern Pacific Ry. Co., B. Blum, ch. engr., 176 E. 5 St., St. Paul, Minn., general contract 50x150 ft. store house, 50x148 ft. covered storage platform, 20x50 ft. oil house, 35x110 ft. fuel storage bldg., and 32x361 ft. car service bldg., to N. W. White, Pier 65, Seattle. Approx. **$150,000.**

Wash., Seattle—SERVICE, etc.—Northern Pacific Ry. Co., and Great Northern Ry. Co., Railroad Bldg., St. Paul 1, Minn., general contract 4 service bldgs. in coach yards in King St., passenger station, Third Ave. S. between Atlantic and Hillgate Sts., 50x298 ft. steel, concrete storehouse, 32x360 ft. car service bldg., concrete oil house for storage, hard fuel storage house, to N. W. White Constr. Co., Pier 65, Seattle, and mechanical work, to University Plumbing & Heating Co., 3941 University Way. Approx., **$350,000.**

UNCLASSIFIED

BIDS ASKED

July 19

Missouri—RURAL DISTRIBUTION LINES—M. & A. Electric Power Co-operative, Poplar Bluffs, 144 mi. 69 KV transmission lines from Poplar Bluff to connect with substations, at Puxico, Idalia, Malden, Anniston, Matthews, Delta, Van Duser and Lutesville, also 9 substations. Approx. $600,000. Stanley Eng. Co., Hershey Bldg., Muscatine, engr.

July 20

Nebraska—RURAL DISTRIBUTION LINES Butler County Rural Public Power Dist., David City, 367.7 mi. rural distr. lines, Butler, Lancaster, Saunders and Seward Counties. $325,000. Raymond H. Reed & Co., Columbus, engrs. CD 4/21.

B. C., New Westminster — PIERS — J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., protection pier repairs, Railway Bridge. Approx. $75,000. Plans deposit $20. R. Blais, c/o owner, engr.

Illinois—RURAL DISTRIBUTION LINES—Tri-County Electric Co-operative, Inc., C. Glenn Jones, pres., 1106 Main St., Mt. Vernon, June 23, 99.44 mi. 7.2 KV distr. lines, 9 mi. 34.5 KV transmission lines, Jefferson and Marion Counties, Proj. Ill. 41 H & L. Jefferson, from Townsend Electric Co., Jackson, Tenn., **$168,023.** CD 6/8.

July 21

North Dakota — RURAL DISTRIBUTION LINES—K. E. M. Electric Co-operative, Linton, labor and materials, rural distr. lines, Sec. D-1, 295 mi. and Sec. D-2, 326 mi. Emmons, Kidder, Logan and McIntosh Counties. $650,000. Ulteig Eng. Corp., 1114½ Front St., Fargo, engrs. CD 4/28.

Tex., Houston—TUNNEL—State Hy. Dpt., Austin, Contr. 1, sub-aqueous portions of tunnel in nine prefabricated tunnel segments under Houston Ship Channel near Morgans Point between Baytown and La Porte. Parsons, Brinckerhoff & Macdonald, 51 Broadway, New York, N. Y., engrs. CD 5/4—ENR 5/12.

July 22

†**Tex., Camp Hood**—BATHHOUSES—U. S. Eng., 606 Santa Fe Bldg., Galveston, 2 bathhouses, Inv. No. Eng-41-243-49 (ACWF)-4 $100,000. CD 6/8.

July 25

Nebraska — TRANSMISSION LINES—Consumers Public Power Dist., R. L. Schacht, genl. mgr., 1452 25 Ave., Columbus, approx. 70 mi. 115 kv, 3 phase rural distr. line from Kramer to Humboldt, via Beatrice, from point in southwest ¼ of Sect. 12, Twp. 7-N, Range 5 East in Lancaster Co.; approx. 3 mi. east and ½ mi. south of Kramer, then south and east to proposed substation to be located in northwest ¼ of Sect. 28, Twp. 4-N, Range 6 East in Gage Co.; said substation location is approx. 1 mi. north and 1 mi. west of city of Beatrice, then east and south to proposed substation location in SW ¼ of Sect. 35, Twp. 3-N, Range 13 East, Richardson Co.; said location approx. ½ mi. north and 1 mi. east of city of Humboldt. Plans deposit $15.

SOON LETS CONTRACT

Kentucky—RURAL DISTRIBUTION LINES—Inter-County Electric Co-operative, Danville, soon lets contract 75.7 mi. rural distr. lines, Boyle, Lincoln, Garrard, Casey, Marion, Madison and Washington Counties, W. E. Broaddaus, 420 W. Main St., Danville, engrs. CD 2/6/47.

LOW BIDDERS

Ala., Gadsden — SWIMMING POOLS, etc.—City, June 21, 3 combination swimming pools, bath houses and filters, from Home Bldg. Co., Alabama City, **$129,768.**

†**Arizona and Nevada** — TRANSMISSION LINE — Bureau Reclamation, Dpt. Interior, Phoenix, Ariz., Tucson-Cochise 115 kv. transmission line, Davis Dam Proj., Spec. 2672, Schedule (1) aluminum conductor, from R. B. Stovall Co., 207 Maple St., Dallas, Tex., **$498,539.** CD 5/17.

†**California** — STEEL TOWERS — Bureau Reclamation, Box 2511, Sacramento, June 16, single circuit steel towers for, 230-kilovolt transmission lines, Perkins-Tracy Line, Central Valley Proj., Spec. R2-62, from Bethlehem Pacific Constr. Steel Corp., 20 and Illinois Sts., San Francisco, **$149,371.**

Calif., Los Angeles — PARK BLDG., etc. — Bd. Supervs. Los Angeles Co., 501 Hall of Records, community bldg. at East Montebello Park, East Montebello, from W. P. Neil Co., 4814 Loma Vista Vernon, **$51,595,** est. $62,207 ***Belvedere Bathhouse, East Los Angeles, from W. A. McClare Constr. Co., 5772 Camilla Ave., **$101,494,** est. $108,387***bathhouse and pool, Palmdale, from Tirril & Tirril 214 S. Lake St., Pasadena, **$114,980** est. $103,400; bathhouse only, from Fred S. Macomber, 8818 Melrose St., **$56,000,** est. $58,400; pool only, from Tirril & Tirril, 214 S. Lake St., Pasadena, **$52,639,** est. $44,000. CD 6/2.

†**Calif., Richmond**—FUEL PIER REPAIRS—Twelfth Naval Dist., P. Wks. Office, Federal Bldg., San Francisco, June 22, fuel pier repairs at Naval Fuel Annex Point Molate, NOY 18625. Spec. 22421, from Duncanson-Harrelson Co., 1404 De Young Bldg., San Francisco, **$149,000.** CD 6/7.

†**Calif., San Diego** — CEMETERY DEVELOPMENT—U. S. Eng., 751 S. Figueroa St., Los Angeles, June 21, development South addn., Ft. Rosecrans National Cemetery, from S. A. Cummings, 821 W. Rosecrans St., Compton, **$99,118,** Est. $100,000. CD 6/9.

Fla., Tallahassee—ELECTRICAL SYSTEM—City, City Hall, Park and Adams Sts., May 23, city electrical sys. addn., from Faulk & Coleman, 4 points Woodville Hy., Tallahassee, **$173,873.** CD 4/25.

Georgia—RURAL DISTRIBUTION LINES—Habersham Electric Membership Corp., Clarksville, May 30, 198.12 mi. rural distr. lines, in Stephens, Habersham, Hall, Lumpkin, White and Robun Counties, from Chatham-Walker, Inc., c/o owner, **$214,919.** CD 6/1.

Ga., Augusta—SWIMMING POOL, etc.—City, June 24, Allen Park Swimming Pool and Bath House, from B.G.M. Constr. Co., Olive Rd., **$68,000.** CD 6/9.

Kansas—RURAL DISTRIBUTION LINES—Norton-Decatur Co-operative Electric Co., Norton, June 17, labor only, 443.17 mi. rural distr. lines, Decatur, Sheridan, Norton, Graham, Phillips, and Rooks Counties, from J. R. Foree, National Bank of Topeka Bldg., Topeka, **$101,744.** CD 6/2.

La., Lafayette—ELECTRICAL DISTRIBUTION SYSTEM—Town, Town Hall, June 24 municipal electric distr. sys. addns., alterations, from W. S. Young, Shreveport, **$89,773.** CD 6/8.

Mass., Braintree—GRANDSTAND—Town of Braintree, Selectmens Office, Town Hall, June 24, grandstand, from Edward J. Rose, 35 Trefton Dr., **$57,989.**

Mass., Brookline — PLAY AREAS, etc. — Town of Brookline Park Comrs., Town Hall, June 22, play areas, tennis courts, grading, surf. water drainage Devotion Playground, Addington Park, Baker School Tennis Courts, from B. F. Quimby & Son, 854 Hammond St., **$84,533.** CD 1/12/45.

Mass., Rockland—GRANDSTAND—Town of Rockland Memorial Park Comn., J. Cormier, chn. Park Comn., Rockland, June 24, Contr. C, grandstand, Memorial Park, from Tibbets Constr. Supply Co., Inc., 815 Bedford St., East Bridgewater, **$64,990.** Mark Linenthal, 16 Lincoln St., Boston, engr.

Nebraska—RURAL DISTRIBUTION LINES—Loup Valleys Rural Electric Membership Assn, Ord, June 15, 327.7 mi. rural distr. lines, Greeley, Garfield, Sherman, Valley and Wheeler Counties, from Dalta Constr. Co., Clarksdale, Miss., **$324,005.** CD 5/31.

N. J., Newark—PNEUMATIC TUBE SYSTEM—At office Chief Engineer Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., June 27, furnishing, installing pneumatic tube sys. in Newark Motor Truck Terminal, Contr. NJT-8, from Airmatic Systems, Inc., 141 Charles St., New York 14, N. Y., **$132,968.** CD 6/9.

N. Y., Brooklyn—FUEL DISPENSING SYSTEM—Bd. Transportation, 250 Hudson St., New York, Zone 13, June 24, fuel dispensing sys. for Flatbush and Ulmer Park Garages, from Bowser, Inc., 420 Lexington Ave., New York, Zone 17, **$74,682.**

†**Oregon**—TRANSMISSION LINES—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, June 22, 23.6 mi. 113 kv. transmission line, Forest-Grove-McMinnville, Inv. 4668, Washington and Yamhill Counties, from Armstrong Constr. Co., Vancouver, Wash., **$88,232.** CD 6/6.

†**R. I., Newport**—STORAGE TANK, etc.—Officer in Charge of Construction, Pub. Wks. Dpt., Naval Base, Newport, June 21, fuel storage tank and drainage sys. imprvs., from Arnold M. Diamond, 50 Court St., Brooklyn, N. Y., **$67,952.**

Texas—RURAL DISTRIBUTION LINES—Rio Grande Electric Co-operative, Brackettville, June 29, 311 mi. rural distr. lines, Dimmit, Maverick, Zavalla and Val Verde Counties, from B & C Constr. Co., 1317 Arborvitae St., Dallas, **$347,291.** Est. $175,000. CD 6/20.

Tex., Anton — BLEACHERS — Anton Independent School Dist., Anton, June 15, bleachers, from Midland Home Owners Loan Corp., Midland, **$106,963.** Est. $50,000. CD 6/8.

Tex., San Antonio—COLISEUM SITE IMPRVS.—Bexar Co., c/o Pub. Bldgs. Dpt., Courthouse, site imprvs. at coliseum graveling site areas mostly, from D. R. Trowbridge, 826 Alamo Natl. Bldg., **$99,501.** Est. $100,000. Phelps & DeWees & Simmons, 1501 Majestic Bldg., and Atlee B. & Robert M. Ayres, Transit Tower, archts.

†**Washington** — TRANSMISSION LINE CLEARING RIGHT-OF-WAY — Bonneville Power Admin., 729 N. E. Oregon St., Portland 8, Ore., June 29, clearing right-of-way 59.8 mi. Olympia-Covington 230 kv transmission line, Inv. 4697, Thurston, Pierce and King Counties, from Keechelus Logging Co., 108 W. 79 St., Seattle, **$188,250.** CD 6/14.

●†**Wash., Richland**—TRACKS—General Electric Co., Richland, June 16, 33,473 track ft. mainline rail, 5,800 track ft. siding rails, rehabilitation 3,070 track ft. rails, removal 2.11 mi. track, 19,800 track ft. classification yard track, steel multiple span bridge with timber approach trestle over Yakima River, steel span roadway overpass with concrete abutments and steel girder span with concrete abutments over U. S. 410 to connect Union Pacific Ry. with Richland, for Atomic Energy Comn., Wash., D. C., from J. A. Terteling & Sons, 4011 Fairview Ave., Boise, Idaho, **$1,060,000.** CD 2/11.

British Columbia — RIGHT-OF-WAY CLEARING — Pacific Great Eastern Railway, C. Spencer, pres., Parliament Bldgs., Victoria, June 8, clearing, grading, section right-of-way for railway extens., Quesnel to Cotton

Canyon, from Jamieson Constr. Co. Ltd., 914 E. Hastings St., Vancouver, **$710,884.** CD 6/6.

P. E. I., Charlottetown—WHARF—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstruction, imprvs., from Canadian Dredge & Dock Co. Ltd., Harbour Comrs. Bldg., Toronto, Ont., Approx. **$721,377.** CD 6/26/48.

CONTRACTS AWARDED

Arizona—RURAL DISTRIBUTION LINES—Graham County Electric Co-operative, Inc., Pima, 50.56 mi. rural distr. line, Graham Co., to Corbin & Davis Electric Co., 623 S. Second St., Phoenix, labor **$31,302,** materials **$50,000,** total $81,302 Price & Hawk, 1509 13 St., Lubbock, Tex., engrs. (**Correction**—location of project). CD 6/22, under Arkansas.

Ga., Atlanta—PARKING PLAZA—N. C. & St. Louis R.R. Co., c/o contractor, auto parking plaza over railway tracks from Pryor St. to Central Ave., to Oman Constr. Co., Acklan Park, Nashville, Tenn., **$105,000.**

Ga., Folkston — MOTOR COURT — H. D. Chastain, Folkston, motor court, to Everett Triggs, Folkston, Approx. **$100,000.**

Ill., West Frankfort—SWIMMING POOL, etc.—Bd. Trustees Frankfort Community Park Dist., Gordon Dodds, Franklin School, 700 Block East St. Louis, swimming pool, bath house, etc., Frankfort Community Park, Cleveland St., to 3A Builders Evansville, Ind., **$174,380.** Bids 6/1. CD 5/19.

Minn., Winona — DRIVE-IN THEATRE — Outdoor Enterprises, A. Smith, secy., Winona, drive-in theatre, to W. M. C. Inc., 303 Winona St., Winona, **$100,000.** Libenberg & Kaplan, 51 S. 13 St., Minneapolis, archts.

Missouri—RURAL DISTRIBUTION LINES—Crawford Electric Co-operative, Inc., Bourbon, 240.66 mi. rural distr. lines, Crawford Co., to Hufford & Kyger, 1810 E. 4 St. Terrace, Kansas City, Mo., labor **$94,452,** material **$240,000,** total $334,452. Bids 4/7. CD 4/19, under LB.

†N. M., Albuquerque—STANDBY ELECTRICAL FACILITIES—U. S. Eng., P. O. Box 1538, special test standby electrical facilities, radio receiving and transmitting bldg., Sandia Base, Serial No. 291-49-105, to Robert E. McKee, P. O. Box 1706, Santa Fe, **$386,532.** Bids 6/24.

†N. M., Los Alamos—UTILITIES—U. S. Atomic Energy Comn., utilities Eng No. 291-49-149, to E. C. Pritchett Plumbing & Heating Co., Heights Blvd., Houston, Tex., **$503,545.** CD 6/3, under Water Supply and Unclassified. CD 6/3.

North Dakota — RURAL DISTRIBUTION LINES — West Plains Electric Co-operative, Dickinson, labor and material 254.9 mi. rural distr. lines, Dunn and Stark Counties, to T. H. Vicars, Inc., Minot, **$316,906.** Bids 6/2. CD 5/26.

O., Marion—COLISEUM—Comrs. Marion Co. Courthouse, Marion County Veterans Memorial Coliseum at Marion Co. Fairgrounds, to Marion Contg. Corp., Marion, **$293,578.** CD 8/21/47.

Texas—GAS LINES—Lone Star Gas Co., 1915 Wood St., Dallas, laying addnl. natural gas lines bringing gas to Lampasas and surrounding area, force account. Approx. **$225,000.** CD 5/16.

Tex., Alvin—GAS DISTRIBUTION SYSTEM—Houston Natural Gas Corp., Petroleum Bldg., Houston, natural gas distr. sys. expan. and imprvs. to sys., own forces. **$60,000.**

●**Tex., Brownsville** — GAS LINE — Carthage Hydrolic, Inc., Brownsville, 3 to 6 mi. gas line between Hidalgo Co. fields and Brownsville, to H. B. Zachry Co., Box 2570, San Antonio, **$1,800,000.**

Tex., Dallas — RAILWAY TRACKS — Chicago, Rock Island & Pacific R. R. Co., F. W. Thompson, ch. engr., La Salle St. Station, Chicago 5, Ill., railway tracks in Trinity Industrial area force account. **$60,000.**

Tex., Dallas — RECREATION CENTER — J. W. & Jimmie, Jr., Marshall, Buckner Blvd. and Lake June Rd., recreation center and bowling alley. Owner builds. **$100,000.** CD 5/9.

Tex., Hemphill—GAS SYSTEM—City, natural gas distr. sys. to Roy M. Mitchel, 2700 Malcolm St., Shreveport, La., **$94,216.** Bids 6/17. CD 6/9.

●**Tex., Houston**—RAILWAY YARDS—Katy Park Industrial Development Corp., 1st. Natl. Bank Bldg., relocation M-K-T. Ry. yards, to O'Rourke Constr. Co., 4011 Koehler St., **$3,500,000.** CD 5/20.

Tex., Port Aransas—CABLE—Central Power & Light Co., 120 N. Chaparrel St., Corpus Christi, 12,000 volt cable 50 ft. under mean low water tide between Port Aransas and Harbor Island, own forces. **$90,000.**

Washington — RURAL DISTRIBUTION LINES — Grays Harbor Co. of Public Utility Dist., Aberdeen, 6 mi. rural distr. lines, Cosmopolis, Grays Harbor Co., to Puget Sound Electric Co., Inc., 1723 Melrose Pl., Seattle, **$67,835.**

●**Wash., Seattle** — GENERATORS — City, County and City Bldg., Zone 4, three 100,000 kva generators for Ross Dam Power Plant, to Westinghouse Electric Co., Union Bank Bldg., Pittsburgh, Pa., **$4,445,222.** Bids 6/8, awarded 6/22. CD 6/15, under LB.

Wash., Seattle — UTILITY TUNNEL — University of Washington, Education Hall, general contract 3,200 ft. utility tunnel, 6 ft. wide, to Rumsey & Co., 3821 Airport Way, $547,668; mechanical contract, to W. E. Beggs Co., 234 9 Ave. N., Seattle, **$250,304.** Bids 6/21. CD 6/1.

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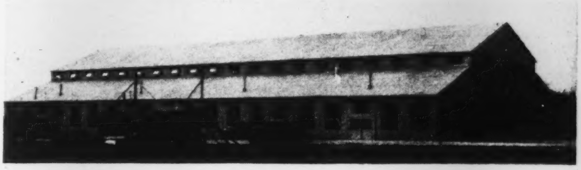

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GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

MANUFACTURERS OF THE "CEMENT GUN"

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

July 18

Ont., Tweed—Municipality, G. D. C. Morton, watermains, $40,000. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs.

LOW BIDDERS

Mo., Edina—City, City Hall, June 3, Contr. 1, water treatment plant, incl. bldg. equip., from Don P. Pray, Monett, **$92,320.** CD 6/3.

Tex., Orange—City, June 27, water sys., inverted syphons, concrete headwalls, channel rectification, pipe, from Farnsworth & Chambers, Inc., Box 74, Houston, **$28,509.** Est. $30,000. Lockwood & Andrews, Union Natl. Bank Bldg., Houston, engrs.

Tex., Smithville—City, project indefinitely postponed, c. i. waterline extens. **$100,000.** Garrett Eng. Co., 5008 Almeda Rd., Houston, engr. CD 6/28.

Ont., Renfrew—Town, L. R. Barrand, clk., rejected bids June 28, main filter plant, reservoir, low lift pumphouse, intake forcemain, etc. CD 6/14.

CONTRACTS AWARDED

Ark., Wynne—City, City Hall, water sys. imprvs., to J. C. Moore Constr. Co., Magnolia, **$88,575;** tank, to Chicago Bridge & Iron Co., Tulsa, Okla., **$31,900,** Est. $60,000. Bids 6/24. CD 6/14.

Conn., Storrs—State, Raymond Thatcher, 114 State Capitol, Hartford, furnish, install well pumps, basin, controls, etc., University of Connecticut, to Seminole Constr. Co., 24 Edison St., East Hartford, **$55,000.**

Mich., Wyandotte—Dpt. Municipal Service, 2555 Van Alstyne Blvd., 1,700 ft. 42-in. intake in trench across western channel, Detroit River, to Dunbar & Sullivan Dredging Co., 2312 Buhl Bldg., Detroit, Zone 26, **$184,272.** Bids 5/23. CD 5/12.

Tenn., Petros—State, Nashville, filtration plant and enlarge dam at Brushy Mountain Prison, to W. L. Hailey & Co. and Allen Murphy, 314 42 Ave. N., Nashville, **$279,987.** Bids 6/14. CD 6/24, under LB.

Tex., San Antonio—Thurman Barrett & Assoc., 6109 S. Flores St., c. i. waterlines, to Barrett & Lively, 6109 S. Flores St., **$29,995.** CD 6/29.

Alta., Brooks—Municipality, water exten. Owner builds, Approx. **$40,000.** J. J. Miller, town, engr.

Man., Portage La Prairie — Municipality, WW sys. exten., to Henry Borger & Son, 190 Osborne, Winnipeg. CD 9/10/45.

SEWERS, WASTE DISPOSAL

BIDS ASKED

July 18

Conn., Meriden — State of Connecticut, G. Albert Hill, state hy. comr., State Office Bldg., Hartford, 2,465 lin. ft. storm water sewerage sys., section Johnson Farms Development. Plans deposit $1.84.

Md., Towson—Bd. Comrs., Baltimore Co., Towson, sewage force main, incl. 8,650 lin. ft. 30 in. ESWP enamelled steel wrapped pipe, force main, 90 lin. ft. 60 in. jacked pipe, 1 special manhole and connection, 1 special manhole and culvert, 3 concrete thrust blocks, 35 cu. yd. plain concrete, 15 cu. yd. rein.-con. 66,000 bd. ft. sheeting, shoring, timber fdns., 500 cu yd. excav., grav. refill, 90 tons crusher run stone paving, 1,000 vertical ft. wood fdn. piling, 31 metal pile brackets, 2 concrete anchor piers. Plans deposit $5. Wm. F. Neale, Court House, ch. engr.

Pa., Conneaut Lake—Conneaut Lake Boro, sewage treatment plant and sanitary sewers. Plans deposit $30. Hill & Hill, 24 E. Main St., North East, engrs.

Ont., Willowdale—Twp. of North York, A. G. Standing, clk., Willowdale, sewage treatment plant, Jane St. and Wilson Ave., Approx. $125,000. Plans deposit $10. Gore & Storrie, 1130 Day St., Toronto, engrs.

July 22

Tex., Texas City—Galveston County Water Control & Imprvt. Dist. 4, Texas City, sanitary sewage sys. extens., & imprvs. $50,000. Joe J. Rady, 811 American Fidelity Bldg., Fort Worth, engr. CD 6/22.

July 25

Minn., St. Louis Park—Village, J. Justad, clk., Village Hall, sanitary sewers, Dist. 2G and 2M, incl. 71,400 lin. ft. 6- to 12- in. house connections, 39 manholes, etc. $90,000. J. C. Utton, village engr.

July 26

Calif., Grass Valley—City, City Hall, sewage treatment plant, collection sys. $350,000. Plans deposit $20. Whipple Eng. Co., 205 Hamilton Ave., Palo Alto and Harry N. Jenks, 63 Crescent Dr., Palo Alto, engrs. CD 6/6.

July 27

Va., Salem — Town, W. Frank Chapman, mgr., incinerator, Proposal 1, incinerator bldg.; Proposal 2, incinerator and chimney complete; Proposal 3, combination Proposals 1 and 2. $80,000. Plans deposit $20. R. Stuart Royer & Assoc., Virginia Bldg., Richmond, archts.

August 15

N. J., Cedar Grove — Cedar Grove Twp., Municipal Bldg., Pompton Ave., sewage treatment plant, Contrs. 2, 3, 4, and 5. Plans deposit $25. Havens & Emerson, Woolworth Bldg., 233 Broadway, New York 7, N. Y., engrs. CD 12/20/45.

LOW BIDDERS

Calif., Oakland—City, City Hall, June 28, sewers, Mountain Blvd., Florence Ave. and Merriewood Tract, Glenwood Exten. Tract and Fernwood Tract, from Edwin J. Tobin, 1000 Carleton St., Berkeley, **$129,197.**

Calif., Placerville—City, City Hall, rejected bids June 27, sanitary sewers, treatment plant imprvs. CD 5/31.

Ind., Fort Wayne—Comrs., Allen Co., Court House, June 28, sewage disposal sys. for Irene Byron Sanatorium, incl. general construction, pump and piping installation, sewers, from W. A. Sheets & Sons, Inc., **$138,000;** general contract only sewage disposal sys., from Buesching Bros., Constr. Co., Fort Wayne, **$89,772.** Est. $180,000. CD 5/27.

Ind., Richmond—Bd. P. Wks., City Hall, July 1, sewage treatment plant, from Greene & Gust, 2130 S. Michigan Ave., Chicago, Ill., **$924,672.** Est. $800,000. CD 5/26.

Ia., Conucll Bluffs—City, City Hall, June 27, Ave. A Relief Sewer, from Carles Robeck Constr. Co., Sunderland Bldg., Omaha, Neb., **$279,955.** CD 6/16.

Neb., Madrid—City, rejected bids June 15, sewers, L.B. **$62,666.** Est. $62,766. Will readvertise. CD 7/7, under LB.

New York—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, June 29, from M & L Contr. Corp., 34-36, 30 St., Long Island City, sewers North Hempstead Turnpike, 150 St. and Horace Harding Blvd., **$146,635;** Union Turnpike, **$82,266;** 227, 229, 135 Sts. and Francis Lewis Blvd., **$64,583.** CD 6/22.

O., Euclid—City, 585 E. 222 St., June 24, storm sewer, appurtenances E. 215 St to Nicholas Ave., from Curro Constr. Co., 787 Union Commerce Bldg., Cleveland, **$89,990.** Est. $90,000. Harry Stalley, city engr.

Alaska, Anchorage—City, City Hall, June 29, 36,100 lin. ft. sewers with flush tank, lift station and outfall structures, from Stateside Constr. Co., 905 10 Ave. S. Seattle, Wash., **$488,401.** Est. $225,000. Flora Eng. Co., Anchorage, engr

CONTRACTS AWARDED

O., Cleveland—City, City Hall, storm and sanitary sewer Rocky River Dr. from Homeway Ave. to Brookpark Rd., to Emil Marcellitti, 11610 Willard Dr., Garfield Heights, **$122,040.** Est. $150,000. CD 6/10.

Ore., Portland—City, City Hall, Outfall Unit 1, 2 mi. 8 ft. concrete sewer from proposed treatment plant north of Vanport across Hayden Island to Columbia River to Guy F. Atkinson Co., Cascade Bldg., **$647,748.** CD 6/30, under LB.

Tex., San Antonio—Thurman Barrett & Assoc., 6109 S. Flores St., sanitary sewers, to Barrett & Lively, 6109 S. Flores St., **$61,100.** CD 6/29.

Alta., Banff—Dominion Govt., Ottawa, Ont., storm and sanitary sewers, day labor, **$50,000.**

N. B., Grand Falls—Municipality, sewerage proj., day labor. **$72,000.** J. Bateman, town engr.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

July 18
Connecticut
July 18-19
Iowa
Massachusetts
West Virginia
Wisconsin
July 22
Kentucky
Pennsylvania
Washington
July 27
Louisiana
August 3
California
August 9
Maryland

July 21

Massachusetts—Mystic River Bridge Auth., E. A. Brest, chn., 6 Beacon St., Boston, Zone 8, Contr. 13, lighting installation, Mystic River Bridge. $80,000. Plans deposit $10. Charles A. Maguire & Assoc., 46 Cornhill St., Boston, engrs. CD 5/10/47.

August 1

Minn., Rochester—City F. R. Finch, clk., City Hall, rein.-con. bridge over Zumbro River, connecting 2 st. SE. and 2 Ave. SE with 3 Ave SE. $200,000. Plans deposit $10. W. H. Wheeler, 802 Metropolitan Life Bldg., Minneapolis, engr. CD 1/11/44.

LOW BIDDERS

California—State Hy. Dpt., Sacramento, June 29, rein.-con. slab bridge, box culvert, wid'n road, bit. surf. across Deer Creek, at Deer Creek ditch, approx. 5.6 mi. south of Porterville, Tulare Co., from Thomas Constr. Co., Rt. 2, Box 267 D, Chino **$61,584.** CD 6/2.

†Washington—Pub. Roads Admin., Broadway and Oak Bldg., Portland, Ore., June 29, 150 ft. steel beam 2-lane bridge on Sauk River Rd., Snohomish Co., from Tower Constr. Co., Herman Kathman, 12533 Bothel Way, Seattle, **$62,622.** CD 6/22.

Washington—State Hy. Dpt., Olympia, received no bids July 1, reconstructing and repairing bridge over Salmon Creek, Primary State Hy. 1. Clark Co. CD 6/16.

CONTRACTS AWARDED

Montana—State Hy. Dpt., Helena, grade, surf. small drainage structures, 0.632 mi. Sun River-Tenth Ave. South Rd., at Great Falls, Cascade Co., to H. G. R. Constr. Co., Great Falls, **$83,101.** Awarded 6/29.

Wyoming—State Hy. Comn., J. R. Bromley, supt., Cheyenne, eight 23 ft. span treated timber bridge over Fish Creek and misc. work on Jackson-Wilson Rd. and four 19 ft. span treated timber bridge over Flat Creek and misc. work on Jackson-Moran Rd., Teton Co., to Charles M. Smith, Thermopolis, **$56,250.** Est. $59,239. Bids 6/24. CD 6/15.

Ont., Owen Sound—Municipality, bridge reconstruction, to Intrusion-Prepakt Ltd., 159 Bay St., Toronto, **$60,000.** CD 6/10/48.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

July 18
Connecticut
July 19
Iowa
Massachusetts
Michigan
West Virginia
Wisconsin
July 20
Rhode Island
July 21
Nevada
July 22
Kentucky
Pennsylvania
Washington
July 27
California
Louisiana
August 4
California

Md., Frederick—Frederick Co. Rd. Bd., Court House, clearing, grading, drainage and placing stabilized base course 1.988 mi. section Old Annapolis Rd., beginning at Rt. 26, near Mt. Pleasant, tying into intersection Chestnut Trove Rd., near Mt. Pleasant, Contr. F C 129, Roger H. Williard, co. engr.

July 25

Minn., Fairmont—Martin Co., H. E. Christianson, aud., Fairmont, grade, grav. 5.2 mi. between SAR 5 and Granada, incl. 70,218 cu. yd. excav., 7,100 cu. yd. crush, screen and load grav. S. P. 46-506-01 (SAR 9), Minn. Proj. S 331 (1), $50,000. Plans deposit $1.10. A. B. Dlessig, ch. engr. CD 4/10/44.

July 26

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, addnl. surf. tr. access roads to shore facilities, U. S. Maritime Comn. Reserve Fleet Site, McFaddin Bend, Neches River, approx. 2 mi. by road south of the southerly limits of Beaumont, in Jefferson Co., Inv. No. CIVENG 41-243-50-11.

LOW BIDDERS

California — State Hy. Dpt., Sacramento, June 29, plant mix surf. 0.6 mi. between 5.4 mi. and 6 mi. north of Middletown, Plumas Co., from Granite Constr. Co., Box 900, Watsonville, **$135,656*****grade, drainage facilities, 5.5 mi. between 7 mi. east of Marklesville to Mono Co. line, Alpine Co., grade, surf. 0.6 mi. between 5.4 mi. and 6 mi. north of Middletown, Lake Co., from A. B. Siri, 1357 Cleveland Ave., Sante Rosa, **$79,748** and **$51,767** respectively. CD 6/2.

Calif., San Francisco—Dpt. P. Wks., City Hall, June 29, imprv. Army St. from S. Van Ness to Guerrero Sts., from Lowrie Paving Co., 1755 Evans St., **$157,124.** CD 6/20.

Colorado—State Hy. Dpt., Denver, June 30, grading, surf. structures, and bridge, 5.348 mi. State Hy. 14, between Muddy Pass and Walden, Colorado Proj. S. 0115 (2), Jackson Co., from J. H. and N. M. Monaghan & Associated Cos., Derby, **$201,247.** Est. $263,419. CD 6/22.

Fla., Pensacola—City, City Hall, June 28, paving 10 mi. city streets, from Harbert & Cargile, Inc., Monroe Park, Mobile, Ala., **$340,010.** CD 6/22.

Kentucky—State Hy. Dpt., Frankfort, rejected bids June 24, traffic bound limestone 5.45 mi. Ky. 80 Cottongin Rd., RS 26-445, Clay Co., L. B. **$126,053;** bit. surf. 4.28 mi. Dorton Creek Rd., Lookout-Esco Robinson Creek Rd., RS (98-543) (98-563), Pike Co., L. B. **$81,211.** CD 6/30, under LB.

Md., Baltimore—Mayor & City Council, City Hall, June 29, c. conc., Contr. 990, from Mahoney Bros., 24 Knickerbocker Bldg., **$130,334*****b. conc. Contr. 992, from Potts & Callahan Paving Co., Inc., 2801 Falls Rd., **$147,460*****c. conc. Contr. 993, from Trinity Bldg. & Constr. Co., 4420 E. Eager St., **$64,745*****c. conc., curbs and gutters, Contr. 995, from Pomer Constr. Co., 2326 Reistertown Rd., **$52,489.** CD 6/21.

†Montana—P. Rds. Admin., Missoula, oiling, 12.5 mi. U. S. Hy. 93 from Conner, south to Idaho-Montana line, from Glenn Geery, Missoula, **$87,203.**

O., Euclid—City, City Hall, paving, curbing, sidewalks on E. 228 St., Lake Shore Blvd. to

Shore Center Ave. from Babbitt Rd. to E. 228 St from Wm L. Schloss Asphalt Paving Co., 3494 Lee Rd., Shaker Heights, c. conc. **$70,241;** asph. tar **$57,261.** Est. $58,000. Harry Stalley, city engr.

●**Pennsylvania**—State Hy. Dpt., Harrisburg, July 1, bit. surf. and c. conc. wid'n., incl. exten. 2 concrete structures, exten. rein.-con. bridge 18,214 ft. L. R. 69 (R-5); 203 (R-5). T. R. 66, Armstrong Co., from The Ray F. Young Co., Inc., Box 101, Kittanning, **$161,212*****build-up and wid'n. base bit. surf. wid'n. pavement with crushed aggregate base, bit. surf., exten. structures, bit. surf., repairing bridge 26,195 ft. L. R. 212 (8 B), T. R. 6 from County Home through Burlington Boro easterly toward Towanda, Bradford Co., from Warren Bros. Roads Co., 38 Memorial Dr., Cambridge, Mass., **$373,716*****bit. surf. crushed aggregate base, misc. constr. and bit. concrete base 5,434 ft. L. R. 276, Sect. 20, T. R. 53 from point in South Fork boro east toward Summerhill Boro, Cambria Co., from The S. T. Brotemarkle Constr. Co., P. O. Box 383, Cumberland, Md., **$112,831*****bit. surf. crushed aggregate base, bit. concrete base and one I-beam bridge, wid'n. pavement and bit. surf. 1,680 ft. L. R. 11046 (2), T. R. 933, Cambria Co. from Donald F. Keiter, Walnut Bottom, **$101,607*****bit. surf. crushed aggregate base, incl. one rein.-con. structure, one I-beam bridge 24,002 ft. L. R. 862 (6); 17096 (1); 17030 (2), T. R. 410 from point near village of Rockton to point near village of Oklahoma, Clearfield Co., from E. M. Brown, Inc., 11 Guelich Ave., Clearfield, **$399,201*****build up and bit. surf. pavement with crushed stone base, bit. surf. pavement 6,192 ft. L. R. 1 (12), T. R. 14, south of Halifax Boro, Dauphin Co., from Middlecreek Constr. Co., Middleburg, **$89,064*****c. conc., etc. 3,813 ft. L. R. 116 (10), T. R. U. S. 119, Fayette Co., from Rider Constr. Co., 325 McKean Ave., Charleroi, **$157,815*****bit. surf., crushed aggregate base and rein.-con. bridge 5,102 ft. L. R. 176 (9) T. R. 44 between Jersey Shore and Oval, Lycoming Co., from Rosser Constr. Co., P. O. Box 72, Mount Joy, **$96,846*****bit. surf. crushed aggregate base, build up pavement with crushed aggregate and bit. surf. exten. concerte box, build up and wid'n. pavement with crushed aggregate base and bit. surf.; bit. surf. pavement, construct superstructures on existing abutments of 3 bridges 22,452 ft. L. R. 296 (6), T. R. 249 between Phillip Station and Little Mars, Tioa Co., from Irving N. Loomis, 69 S. Main St., Montrose, **$291,328.** CD 6/8.

South Dakota — State Hy. Comn., Pierre, June 28, base course 10.799 mi. F. I. 185 (26), Jones Co., and base and bit. surf. 10.678 mi. FA-F 447A (2) and F 447 (5), Pennington and Custer Counties, from Northwestern Eng. Co., Rapid City, **$394,515** and **$257,887** respectively ***base course 11.545 mi. F 246 (5) and F 455 (6), Shannon Co., from Summit Constr. Co., Rapid City, **$164,839*****grading, base and bit. surf. 0.539 mi. S 121 (1), Deuel Co., from W. H. Noel Co., Jamestown, N. D., **$43,402*****grading 14.036 mi. S 81 (2), Sanborn Co., from S. E. Gustafson Constr. Co., 7 Lacotah Bldg., Sioux Falls, **$52,139*****rejected bids June 28, bit. surf. 7.003 mi. F 254 (18), Bennett Co. L. B. **$116,367.** CD 6/17.

Tex., Abernathy—City, June 28, 54 blocks street imprvs. and asph. paving, from J. R. Fanning, Lubbock, **$98,335.** Est. $90,000. H. N. Roberts & Assoc., Lubbock, engrs.

Washington—State Hy. Dpt., Olympia, July 1, clearing, grading, draining, surf., construct 2 log bridges 4.584 mi. Mine to Market Road, Lennox Creek to Cougar Creek, King Co., from S. S. Mullen, Inc., 621 9 Ave. N. Seattle, **$109,797.** CD 6/16.

†**Alaska**—Alaska Road Comn., Juneau, 1 mi. extens. Thane Rd. with bridge over Sheep Creek, from Haynes & Whiteley Enterprises, Juneau, **$54,323.** F. A. Metcalf, ch. engr. CD 8/17/45.

British Columbia—Province of British Columbia, Parliament Bldg., Victoria, reconstructing 3.02 mi. Erickson-Goat River section Southern Trans-Provincial Hy., from Campbell-Bennett Ltd., 1718 W. 5 Ave., Vancouver, **$153,671;** reconstructing 1.92 mi. Sandwick revision Island Hy. from General Constr. Co. Ltd., Granville Island, Vancouver, **$69,369.** CD 3/1/43.

CONTRACTS AWARDED

Ga., Augusta—City, c. conc. paving 4 streets to William F. Bowe Co., 540 Reynolds St., **$107,891.** Bids 6/24. CD 6/17.

Iowa—State Hy. Dpt., Ames, pavement resurf. and rolled stone base and c. conc. base wid'n. 14.996 mi. F 18-(4), Clinton Co., to Rock Road Constr. Co., 5915 N. Rogers St., Chicago, Ill., **$525,444;** paving 12.864 mi. F 879 (6), Crawford Co., to Western Contg. Co., 400 Benson Bldg., Sioux City, **$507,013.** Bids 6/21. CD 6/29, under LB.

Kan., Atchison—City, City Hall, paving, to Land Constr. Co., 127 S. 4 St., St. Joseph, Mo., **$87,507.**

Kan., Chanute—City, City Hall, c. conc. and asph. paving streets, to Freetoi Constr. Co., Pittsburg, **$142,000.** G. K. Faust, city engr.

Mississippi—State Hy. Dpt., Jackson, grav. surf. course, culverts, bridges, 8.013 mi. Co. Hy. between Esperanza and Ecru, F. A. S. P. S 316 (1), Pontotoc Co., to Worsham Bros., Corinth, **$110,840,** est. $101,000***stabilized base, double bit. surf. tr., culverts, 4.735 mi. mi. Unnumbered State Hy. between Flora and Canton, S. P. 22-1530 (1), Madison Co., to S. Leroy Reed, Belzoni, **$86,772,** est. $80,000*** grav. surf. course, bridges, culverts, 1.792 mi. Co. Hy. between Duck Hill and Alva, F. A. S. P. S. 283, (1), Montgomery Co., to John H. Moon, Port Gibson, **$78,833,** est. $95,000***oil cement stabilized base and double bit. surf. tr., culverts 5.58 mi. Mississippi Hy., 3 between Utica and Vicksburg, F. A. S. P. S. 330 (5), Warren Co., to Delta Paving Co., 1502 N. Mills St., Jackson, **$82,280,** est. $65,000*** stabilized base and double bit. surf. tr. 5.042 mi. Co. Hy. between Sebastapol and Union, S. P. S 492-1528 (1) and stabilized base and double bit. surf. tr. 6.59 mi. Co. Hy. between Union and Little Rock, S. P. S. P 494-1592, Newton Co., to Cobb Bros., Constr. Co., Citizens Bank Bldg., Meridian, **$61,806,** est. $56,000 and **$81,202,** est. $75,000 respectively***base preparation and bit. pavement, culverts, 9.985 mi. Mississippi Hy., 32 between Webb and Charleston, F. A. S. P. S. 43 (5), Tallahatchie Co., to Dunn Constr. Co., First National Bldg., Birmingham, Ala., **$212,392,** est. $200,000*** grav. surf. course, culverts, bridge 5.932 mi. Co. Hy. between Pineville and Smith-Scott Co. Line, F. A. S. P. S. 149 (2), Smith Co. and grav. surf. course, culverts and bridges 5.929 mi. Co. Hy. between Ripley and Kossuth, F. A. S. P. S. 304 (1), Alcorn Co., to Tupelo Constr. Co., First National Bldg., Birmingham, Ala., **$66,225,** est. $68,000 and **$69,103,** est. $55,000 respectively, Grand total $849,453. Bids 6/28. CD 6/22.

Montana—State Hy. Dpt., Helena, surf. 6 mi. Belton-Glacier National Park Station Hy. east of Belton, to S. Birch & Sons, Ford Bldg., Great Falls, **$128,571;** surf. 31.8 mi. Wisdom Divide Rd., to Nilson-Smith Constr. Co., 812 2 St., Great Falls, **$192,491.** Awarded 6/29.

O., Cleveland — City, City Hall, grading, pavng, curbing, draining, Grapeland Ave. from Warren to Triskett Rds., to J. & S. Galier Co., 418 W. 138 St., **$64,913.** Est. $75,000. Bids 6/23, awarded 6/29. J. C. Wenrich, city engr.

Okla., Bartlesville—City, c. conc. in Dist. 29 to Jack Briscoe, Stillwater, **$116,847.** Est. $122,000. V. G. Thompson, 1100 W. Main St., Oklahoma City, engr. Bids 6/20, awarded 6/30.

Okla., El Reno—City, grading, c. conc. in Dist. 24, to M. A. Swatek & Co., Hightower Bldg., Oklahoma City, Zone 2, **$75,026.** Est. $75,810. Bids 6/29, awarded 7/1. Rex Collins, McAlester, engr.

Tex., San Antonio—Thurman Barrett & Assoc., 6109 S. Flores St., street constr. and asph. paving, to Barrett & Lively, 6109 S. Flores St., **$52,000.** CD 6/29.

Tex., San Antonio—M. A. McEachern, Houston Bldg., street constr., clearing and grubbing area, own forces. Approx. **$60,000.**

Washington—State Hy. Dpt., Olympia, non-skid seal and light bit. surf. and bit. 64.83 mi. State Hys. 9, 9-A, 9-B and 9-E, Contractors Gulch to Clallam Co. line, Clallam and Jefferson Counties, to Western Asphalt Co., 309 W. 39 St., Seattle, **$77,474*****non-skid seal and light bit. surf. 27.38 mi. State Hys. 12 and 12-C, South Bend to Palix River, Pacific and Wahkiakum Counties, to Diesel Oil Sales Co. 2155 Northlake Ave., Seattle, **$103,517*****surf. 2 mi. stockpiling ballast, crushed stone surf., mineral aggregate for non-skid seal Primary State Hy. 3, Union Flat Creek to Central Ferry, Whitman Co., to D. A. Sullivan, Parkwater, **$63,650*****stockpiling crushed stone surf., mineral aggregate for bit. Primary State Hy. 1, Shuksan to Mt. Baker, Whatcom Co., to C. V. Wilder Co., Bellingham, **$82,347***** non-skid seal and light bit. surf. tr. 83.8 mi. State Hys. 2, 10, 10-B and 10-D, Douglas to Moses Coulee et al, Douglas and Grant Counties, to McAtee & Heath, E 3527 Trent St., Spokane, **$84,817*****b. conc. 1.185 mi. Primary State Hy. 5, Yakima, westerly F. A. P. U-018-2 (1), Yakima Co., to C. & E. Constr. Co., Yakima, **$216,245*****clearng, grading, draining, surf. 3.106 mi. Primary State Hy. 14, Purdy to Point Fosdick Rd., Sect. 1, F. A. P. No. F-009 (1) Unit 3, Pierce Co., to Fiorito Bros., 1100 Leary Way, Seattle, **$314,177.** Grand total **$942,227.** Bids 7/1. CD 6/16.

Wash., Seattle — City, City Hall, paving Commodore Way and other streets, to Fiorito Bros., 1100 Lear Way, **$132,226.** Est. $146,500. R. W. Finke, city engr. Bids 6/29.

Wyoming—State Hy. Comn., J. R. Bromley, supt., Cheyenne, base course surf. bit. preservative tr., etc., 8.559 mi. Woods Landing-Colorado State Line Rd., F.A.S.P. S-16 (3), Albany Co. and base course surf., plant mix surf., etc., 0.937 mi. Newcastle Streets, F.A.P. F-151 (3), U. S. 85 and 16, Weston Co., to Northwestern Eng. Co., Box 567, Denver, Colo., **$76,538** est. $83,532 and **$152,608** est. $137,060 respectively***base course surf., bit., etc. 14.51 mi. Evanston-Hilliard Flat Rd., F.A.S.P. S-36 (3), Uinta Co., to Peter Kiewit Sons Co., Box 875, Sheridan, **$57,739** est. $62,749***base course surf., oil tr. by road mix method, etc. 9.051 mi. Sheridan-Beckson Rd., F.A.S.P.S.-42 (3), Sheridan Co., to S. Birch & Sons Co., Ford Bldg., Great Falls, Mont., **$143,828** est. $154,106***base course surf., oil treatment by road mix method, stone chip seal coat, 1 treated timber bridge, etc. 6.882 m. Pavillion Rd., F.A.S.P., S-274 (3), Fremont Co., to Gilpatrick Constr. Co., Riverton, **$123,507** est. $132,547***base course surf., bit., etc. 19.9 mi. Snake River Canyon Rd., S. P., 2622 and 2632, Lincoln and Teton Counties, to A. L. Hurley, Worland, **$83,390** est. $73,618***base course surf., surf. tr., etc. 21.557 m. Manderson-Hyatville Rd., F.A.S.P.S.-34 (3), Big Horn Co., to Knisely-Moore Co., Douglas, **$55,637** est. $60,083. Grand total $693,247. Bids 6/24. CD 6/15.

Ont., Toronto—Municipality, pavement and sidewalk, various locations, to Kilmer Van Nostrand & Co., 315 Eglinton St., **$69,484.** M. Stewart city engr.

Que., Mount Royal (Postal Dist. Montreal)—Municipality, pavement and concrete walks, to Dibblee Constr. Co. Ltd. 760 Victoria Sq., Montreal, **$60,000.** R. J. MacNeil, 90 Roosevelt Ave., Mount Royal, engr.

Saskatchewan—Province of Saskatchewan, Regina, sub grade surf. Hy. 6, Regina, to Alex. Wilson, Tisdale, **$52,000;** sub grade surf. Hy. 9, Saskatoon, to N. W. Acorn, Fenton, **$56,200.** CD 10/21/43.

EARTHWORK, WATERWAYS

BIDS ASKED

July 19

†**Missouri and Arkansas**—U. S. Eng., P. O. Box 97, Memphis, Tenn., placing approx. 1,160,000 cu. yd. material, in levee, enlargement and roadway embankment, New Madrid Co., Mo. and Phillips and Desha Counties, Ark., Serial No. Eng. 40-041-49-165.

July 20

Ont., Belleville—J. M. Somerville, secy., c/o Dpt. P. Wks., Hunter Bldg., Ottawa, harbor imprvs. Approx. $30,000. Plans deposit $20. R Blais, c/o owner, engr.

About July 21

†**Illinois and Missouri**—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis, 1, Mo., timber piling, clump dikes and bank protection in Mississippi River, incl. Item 1, piling dikes, Powers Island-Scheniman, Miles 33-40 and 57-65 above Ohio River, Item 2, bank protection Cape Girardeau-Liberty-Kaskakia Island, Miles 47-57, 96-103 and 109.5-116 and Item 3, piling dikes Grand Tower Island Fish Bend Miles 75.5-83 and 132.5-114.

July 29

†**N. C., Camp Lejeune (Br. New Bern)**—Pub. Wks. Office, Building 1005, Marine Barracks, shore retaining wall at U. S. Naval Hospital, Spec. 22841. Plans deposit $20.

About August 3

†**Minnesota**—U. S. Eng., 1217 U. S. Post Office and Custom House, St. Paul, Zone 1, bank protection work, adjacent to Landward Lock, at Lock and Dam 2, Mississippi River, approx. 1.4 mi. upstream from Hastings, and approx. 37.8 mi. downstream from lower Northern Pacific Railway Bridge, at Minneapolis.

LOW BIDDERS

†**Arizona**—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., June 28, four 1,000 hp., three 3,000 hp. and three 2,000 hp. synchronous motors for Wellton-Mohawk Pumping Plants 1, 2, and 3, respectively, Gila Proj., Spec. 2675, from Ideal Electric & Mfg. Co., Mansfield, O., **$283,495.** CD 5/18.

†**Georgia**—U. S. Eng., Post Office Bldg., Savannah, June 28, levee, appurtenances in Altamaha River Basin, Ochmulgee River, Serial No. Eng-09-133-49-193, from W. T. Anderson, Thomson, Schedule 1 **$223,567,** Schedule 2 **$226,337.** CD 6/22.

†**Illinois**—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, Ky., June 28, flood protection, vicinity Reevesville, Reevesville and Cache River Levees, Serial No. Eng. 15-029-49-145, from Traylor Bros., Inc., Mt. Vernon Rd., Evansville, Ind., and H. D. Tousley Co., Inc., 552 Massachusetts St., Indianapolis, Ind., **$351,771.** Est. $535,619. CD 6/23.

†**Ky., Ashland**—U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va., June 22, local protection proj., Sect. 1, Serial No. Eng. 46-022-49-151, from Pocahontas Constr. Co. Inc., Lewisburg, W. Va., **$147,849.** Est. $176,211. CD 5/27.

†**Louisiana**—U. S. Eng., foot Prytania St., New Orleans, Zone 9, June 17, concrete structure, 2 gates, 182,000 cu. yd. excav., 3,655 cu. yd. concrete, 513,000 lb. steel, sector gates, Schooner Bayou Control Structure Vermillion Parish, Serial No. Eng. 16-047-49-282, from Keller Constr. Co., 7900 Palm St., New Orleans, **$670,575.** Est. $614,746. CD 4/28.

†**Missouri**—U. S. Eng., Rock Island, Ill., June 29, upper approach at Lock and Dam 22, Mississippi River, near Saverton, from Ferd J. Robers Co., Burlington, Wis., **$113,931.** Est. $104,426. CD 6/21.

●†**Nebraska**—Bureau Reclamation, Dpt. Interior, Trenton, Trenton Dam foundation, Frenchman-Cambridge Division, Missouri River Basin Proj. Spec. 2689, from Marshall, Haas & Royce, Belmont, Calif., **$1,626,250.** CD 6/6.

†**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., June 30, mfg., del. tainter valve operating machinery for McNary Dam Navigation Lock, Serial No. Eng-45-164-49-99, from Northwest Marine Iron Work, 2516 N. W. 29 St., Portland, **$95,133.** CD 6/22.

†**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., June 30, mfg., del. tainter valves, tainter valve liner, bulkheads and trashracks for McNary Dam Navigation Locks, Serial No. Eng-45-164-49-100, from United Eng. Co., 500 Beale St., San Francisco, Calif., **$142,400.** CD 6/22.

†**Oregon**—U. S. Eng., Pittock Block, Portland, Zone 5, June 30, levee imprv. incl. raising and strengthening 1.2 mi. levees and construct 0.3 mi. dumped stone revetments in Multnomah Drainage Dist. 1 along left bank of Columbia River 1¼ mi. northeast of Portland, Eng-35-026-49-573, from Willamette Tug & Barge Co., foot of North Portsmouth Ave., Portland, **$45,901.** Est. $38,170. CD 6/22.

Pennsylvania—Dpt. Forests & Waters, 405 Education Bldg., Harrisburg, June 30, construct Lake Jean Dam at Ricketts Glen State Park, Luzerne Co., from Marshall Constr. Co., 1506 Mayflower St., Harrisburg, **$203,041.** Est. $344,000. CD 6/14.

●†Tennessee—U. S. Eng., P. O. Box 97, Memphis, Zone 1, June 28, placing asphalt upper bank paving at several locations along Mississippi River between Memphis and mouth of the White River from Sam Finley, Inc., 292 North Ave. N. W., Atlanta, Ga., **$965,100;** placing 17,100 squares riprap paving at Caruthersville, Mo., the bend of Island 14 west of Ridgely, Tenn. and below Toneys towhead on left bank of river in Lake Co., from Mississippi Valley Eng. & Constr. Co., 736 Ala. Ave., Memphis, **$384,579.** CD 6/6.

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, June 28, dredging, Trinity River from 3 mi. north Double Bayou to Anahuac, Inv. No. Eng-41-243-49-341, from Hendry Corp., P. O. Box 45, Harvey, La., **$207,244.** Est. $100,000. CD 6/14.

●†Alaska, Nome—U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash., June 30, seawall, Serial No. Eng-45-108-49-223, from Manson Constr. Co. & Osberg Constr. Co., 821 Alaskan Way, Seattle, Wash., **$1,063,900.** Est. $1,223,040. CD 6/22.

CONTRACTS AWARDED

†Ky., Newport—U. S. Eng., 830 W. Broadway, Louisville, levee and 3 pump. stations, appurtenances, to Penker Constr. Co., 1030 Summer St., Cincinnati, O., **$620,400.** Est. $574,981. Bids 6/21, awarded 7/1. CD 6/27, under LB.

†Nebraska—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., construct Levee Unit 513-512-R, Sect. II, along left bank Missouri River and along both banks Nemaha River south of Rulo (Inv. No. Eng-23-028-49-231), to Perry McGlone, 608 Grand Avenue Bank Bldg., Kansas City, Mo., **$604,645.** Bids 6/17. CD 6/24, under LB.

New York—Dpt. Pub. Wks., Albany, 5 stone jetties between Fresh Pond Rd. and Abrams Landing on Gardiners Bay, Suffolk Co., to Frederick E. Uhlein, Westhampton Beach, **$28,600.** Bids 5/25. CD 5/19.

†Oregon—U. S. Eng., Pittock Block, Portland, Zone 5, bank protection works along right bank of Willamette River at Upper Half Moon Bend in Linn Co. 6 mi. northeast of Corvallis, Benton Co., Linn Co., to Stoen's Rock & Landscape Co., 8406 Aurora St., Seattle, Wash., **$114,822.** Est. $122,057. Bids 6/28. CD 6/14.

†Oregon—U. S. Eng., Pittock Block, Portland, levee rehabilitation, incl. drainage facilities and structures on Lower Smith river area south of Gardiner, Douglas Co., Eng-35-026-49-564, to Henshaw Bros., 4006 N. E. Davis St., Portland, **$59,810.** Est. $64,448. Bids 6/29. CD 6/14.

AIRPORTS AND AIRBASES

BIDS ASKED

July 20

Md., Baltimore—CEMETERY REMOVAL—Mayor & City Council, City Hall, removal cemetery, Friendship International Airport, Donald H. Connolly, dir. Dpt. Aviation, 1105 Municipal Bldg., engr.

LOW BIDDERS

†Ill., Belleville—HOUSING—U. S. Eng., 520 Merchandise Mart, Chicago, Zone 54, rejected bids June 24, 5 row houses, incl. 8 units each, Scott Field. CD 6/14.

CONTRACTS AWARDED

†N. Y., Schenectady — FACILITIES — U. S. Eng., 120 Wall St., New York, Zone 5, air national guard facilities at Schenectady County Airport, Phase 2, to Joseph L. Muscarelle, Ltd., 42 First St., Hackensack, N. J., **$611,208.** Bids 6/24. CD 6/29, under LB.

†N. Y., White Plains—AIRPORT FACILITIES—U. S. Eng., 120 Wall St., New York, Zone 5, National Guard Airport facilities, Schedule 3, to F. D. Rich, 101 Park Ave., New York, Zone 17, **$50,074.**

Wash., Yakima—ADMINISTRATION BLDG. —City, City Hall, general contract airport administration bldg., to W. M. Yeaman, Yakima, **$193,755.** Bids 6/28. CD 6/7.

●†Newfoundland, Harmon Field—AIR FORCE BASE—United States Dpt. Air Force; Pentagon Bldg., Arlington, Va., Harmon Air Force Base, incl. family quarters, landing facilities, headquarters, administration bldg., etc., to Metcalfe-Hamilton-Kansas City Bridge Co., 67 Broad St., New York, Zone 4, N. Y., U. S. A., **$5,117,000.**

PUBLIC BUILDINGS

BIDS ASKED

July 18

Ont., Belleville—HOUSING—A. J. E. Smith, engr., c/o Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, 100 houses, Belleville, 3/49. Approx. $700,000. Plans deposit $10. CD 5/19.

July 19

N. Y., West New Brighton—HOUSE IMPRVS.—New York City Housing Auth., 63 Park Row, New York, Zone 7, street and yard imprvs. for Todt Hill Houses (Proj. No. N. Y. C. 13) in area bounded by LaGuardia Ave., Schmidt's Lane, Manor Rd. and Westwood Ave., Richmond Boro. Plans deposit $25.

July 20

N. Y., West New Brighton—HOUSE IMPRVS.—New York City Housing Auth., 63 Park Row, New York, Zone 7, top soil and planting for Todt Hill Houses (Proj. No. N. Y. C. 13), in area bounded by LaGuardia Ave., Schmidt's Lane, Manor Rd. and Westwood Ave., Richmond Boro. Plans deposit $25.

July 21

N. Y., Brockport—DORMITORY—New York State Dormitory Auth., Albany, dormitory and facilities bldg. $700,000.

N. D., Grand Forks—STUDENT UNION—University of North Dakota, Grand Forks, student union bldg. $500,000. Extended date. Grosz & Anderson, Grand Forks, archts. CD 6/14.

Wash., Mount Vernon—PHYSICAL EDUCATION—Union High School Dist. No. UH-1, Mount Vernon, 174x183 ft. rein.-con., steel physical education bldg. $300,000. Mallis, DeHart & Hopkins, Lyon Bldg., Seattle, Zone 4, archts. CD 10/30/46.

†Wyoming—RESIDENCES—Bureau Reclamation, Dpt. Interior, Moorcroft, furnishing, erecting six 2 bedroom residences for Reyhole Govt. Camp, Moorcroft, Spec. R6-30 (Region 6), Missouri River Basin Proj.

July 22

N. Y., New Platz—DORMITORY—New York State Dormitory Auth., Albany, dormitory and facilities bldg. $756,000.

July 26

†Fla., Green Cove Springs—COMPRESSED AIR PLANT—At office Capt. J. D. Wilson, Officer in Charge Construction, Box 365, Naval Base, Charleston, S. C., 36x73 ft. steel, concrete and masonry compressed air plant and distr. sys., NOY 18356, Spec. 2169. Plans deposit $15.

Ga., Atlanta — GYMNASIUM — Bd. Educ., City Hall, Atlanta, gymnasium at Hoke Smith High School. Plans deposit $25. Bodin & Lamberson, Forsyth Bldg., archts.

N. Y., New York—HOUSE IMPRVS.—New York City Housing Auth., 63 Park Row, Zone 7, street and yard imprvs. for Sect. I, Governor Alfred E. Smith Houses (Part of Proj. No. NYS-25) in area bounded by South St., Catherine Slip, south side of Cherry St., south side of New Chambers St., New Bowery, Pearl St., and Brooklyn Bridge. Plans deposit $25.

N. Y., Oneonta—DORMITORY, etc.—New York State Dormitory Auth., Albany, dormitory and residence hall. $643,000. CD 12/26/46.

N. C., Durham—LIBRARY—North Carolina College for Negroes, Durham, 3 story, 70x205 ft., structural steel, brick library, pile fdn. Plans deposit $25 general, $10 mechanical. George Watts Carr, 111 Corcoran Bldg., archt.

July 27

Conn., East Hampton—SCHOOL—Town, Bd. Selectmen, Town Hall, brick, steel school addn., Hog Hill Rd. Guy Francis Lamb, 252 Main St., Middletown, archt. CD 6/14, under LB.

July 28

N. Y., New York—HEALTH CENTER—Dpt. P. Wks., Municipal Bldg., Zone 7, general contract plumbing, heating and ventilating, electrical work for altering Lower West Side Health Center, 9 Ave. between 27 and 28 Sts., Manhattan Boro. Plans deposit $25. CD 2/14/45.

August 1

Conn., Westport—SCHOOL—Town, William H. Villas, chn. Building Comn., Staples High School, Riverside Ave., brick, steel Greens Farms School addn. incl. repairs, alterations. $500,000. Plans deposit $25. Lyons & Mather, 211 State St., Bridgeport, archts. CD 1-26.

August 2

●Calif., Berkeley — SCHOOL — Berkeley Bd. Educ., 1414 Walnut St., Berkeley High School auditorium. $1,100,000. Plans deposit $50. Will G. Corlett & Henry H. Gutterson, 1801 Bank of America Bldg., Oakland, archts. CD 9/14.

†Mont., Fort Peck—SWITCHGEAR, etc.—U. S. Eng., Fort Peck, 13.8 Kv 3,000 amp. cubicle switchgear and 13.8 KV 1,200 amp. generator neutral circuit breaker, Fort Peck Power House, Fort Peck, Serial No. CIVENG 24-016-50-1.

August 4

N. Y., Potsdam—RESIDENCE HALL, etc.—New York State Dormitory Auth., Albany, residence hall and facilities bldg. $765,500. CD 12/26/46.

Tex., Nacogdoches — HOSPITAL — City, 71-bed Memorial Hospital, $250,000. Hal B. Tucker, Nacogdoches, archt. T. Milton, 2615 Fannin St., Houston, engr. CD 6/27.

About August 9

†North Dakota—HOUSES—U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, relocating prefabricated houses from Fort Lincoln to Riverdale, Serial No. Civeng-32-015-50-1. CD 6/1/44.

August 17

●Va., Williamsburg—HOSPITAL—State, Richmond, at office Dr. Joseph E. Barrett, 9 N. 12 St., Richmond, Disturbed Patients Bldg. 22 at Eastern State Hospital Site, Dunbar Farm, near here. $1,500,000. Plans deposit $50. Rudolph, Cooke & Van Leeuwen, 355 Monticello Arcade Bldg., Norfolk, archts. CD 12/7/44.

August 24

†Mo., Kansas City—HOSPITAL—U. S. Eng., 601 Davidson Bldg. Kansas City, veterans administration hospital, Serial No. Eng. 23-028-50-1. Extended date. CD 4/28.

LOW BIDDERS

Calif., Dinuba—HOSPITAL—Alta Local Hospital Dist., Dinuba, June 24, general contract 1 story, rein-con. hospital, from Trewhitt Shields & Fisher, 926 Parallel St., Fresno, **$493,800.** CD 6/14.

Ga., Milledgeville — BOILER PLANT — Dpt. P. Welfare, State Office Bldg., Atlanta, June 28, boiler plant addn. at Georgia State Hospital, from D. C. Fowler & Co., 103 Alexander St. N. W., Atlanta, **$144,440.** CD 6/10.

Ky., Paris—HOSPITAL—Bourbon Co., Paris, June 30, general contract hospital, from Perkins & Gray, Ashland, **$513,000.** CD 6/20.

Miss., Columbus—CLASSROOM—State Bldg. Comn., Jackson, June 28, classroom bldg., Mississippi State College for Women, from Myers & Quinn, Columbus, **$286,800.** CD 6/6.

Mo., Lebanon—POWER PLANT IMPRVS.—City, Henry Hufft, clk., City Hall, rejected bids June 23, Contr. 2A, installing electric service entrances, power plant. CD 6/2.

†N. Y., Brookhaven—LABORATORY—Brookhaven Natl. Laboratory, P. O. Box 150, Patchogue, June 20, laboratory, from Roberts Nash Constr. Co., 39-15 Main St., Flushing, **$608,400.** CD 6/16.

N. Y., Homer—SCHOOLS—Bd. Educ., Homer Central School Dist., Homer, June 16, high school, from Louis Gressani, Hopkins and Liverpool Rds., Syracuse, **$848,075;** grade school, from A. Miller, Inc., 1st. Natl. Bank Bldg., Utica, **$531,666.** CD 6/2.

†N. D., Grand Forks—LIGNITE RESEARCH LABORATORY—Bureau of Mines, Interior Bldg., E St. between 18 and 19 Sts. N. W., Wash. 25, D. C., June 29, general contract lignite research laboratory at University of North Dakota, from Johnson, Drake & Piper, 1138 Baker Bldg., Minneapolis, Minn., **$376,565.** CD 6/1.

Okla., Norman—GEOLOGY AND MINERAL INDUSTRIES—University of Oklahoma, Norman, geology and mineral industries bldg. from Harmon Constr. Co., 1138 N. W. 4 St., Oklahoma City, Zone 4, **$550,000.** Est. $525,000. W. T. Valberg, 1517 N. Broadway, Oklahoma City, archt. CD 6/2, under LB.

Tex., College Station—SCIENCE—Agricultural & Mechanical College of Texas, College Station, June 28, 56,000 sq. ft. masonry science, from J. W. Bateson Constr. Co., Irwin Keasler Bldg., Dallas, **$457,216.** CD 6/2.

●Va., Hampton—SCHOOL—School Bd., Elizabeth City County, Hampton, June 29, George Wythe Junior High School, from Virginia Eng. Co. Inc., Newport News, **$1,027,000.** CD 6/6.

Alaska, Kenai — SCHOOL — Territorial Bd. Educ., Juneau, 2 story, 60x133 ft. rein.-con. school, from Nelse Mortensen & Co., 1021 Westlake Ave. N. Seattle, Wash., **$349,969.** Manley & Mayer, Anchorage, archts.

B. C., Vancouver—GYMNASIUM, etc.—Vancouver School Bd., 590 Hamilton St., Vancouver, 2 story, rein.-con. wood, steel gymnasium, cafeteria, from Thor M. Peterson Ltd., 193 E. Hastings St., **$271,722.** E. D. King, 590 Hamilton St., archt. CD 9/28/43.

CONTRACTS AWARDED

Calif., East Palo Alto — HOUSING — Brentwood Co., 5401 Mission St., San Francisco, 40 houses, Palo Alto Gardens, Owner builds. Approx. **$260,000.**

†Colo., Denver — HOUSING — U. S. Eng., 2 Railway Exchange Bldg., Denver, two 2 story, bsmnt., brick row type bldgs., to Industrial Constructors, 124 Wazee Market St., **$279,477.** Bids 6/17, awarded 6/26.

●†D. C., Wash.—WOMENS DORMITORY— P. Bldgs. Admin., F St. between 18 and 19 Sts. N. W., womens dormitory Howard University, to Cramer Vollmerhausen, 2601 Connecticut Ave., **$1,331,000.** CD 6/20, under LB.

Miss., State College—ENGINEERING—State Bldg. Comn., Jackson, engineering bldg., Mississippi State College, to L. B. Priester & Son, Meridian, **$287,500.** Bids 6/28. CD 6/6.

Mo., Boonville — ENGINE HOUSE, etc. — Director P. Bldgs., Jefferson City, engine house, connecting tunnel, engine fdns., setting, wiring, steam and electric utilities department, to Brown-Hawkins Constr. Co., Finance Bldg., Kansas City, Mo., **$145,267.** Marshall & Brown, 114 W. 10 St., Kansas City, Mo., archts. Bids 6/15

Mo., Lebanon—POWER PLANT IMPRVS.—City, Henry Hufft clk., City Hall, Contr. 7, bldg. imprvs., Contr. 8, power wiring, Contr. 10, power piping, power plant, to Fred Krudwig, Lebanon, **$172,500.** Bids 6/23. CD 6/2.

Mo., Perryville — HOSPITAL — Perry Co. Memorial Hospital c/o Bd. Trustees, Gordon Griffin, secy., Perryville, 2 story, part bsmnt., 44x184 ft. and 48x49 ft., 1 story section 39x44 ft., brick, concrete hospital to Brockmeyer Constr. Co., Missouri Theatre Bldg., 634 N. Grand Blvd., St. Louis, Zone 3, **$525,450.** Bids 5/27. CD 6/7.

O., Bowling Green — HOSPITAL — Wood County Hospital Assn., Alva W. Bachman, secy., Bowling Green, general contract 50 bed hospital, to Steinile-Wolfe Co., Fremont, **$463,429.** CD 6/13.

†Oregon—APARTMENTS, etc.—U. S. Eng., Pittock Block, Portland Zone 5, repair, raise certain apartments and drying rooms at Bonneville Dam. Eng-35-026-49-578, to Neuman Co., 980 S. Commercial St., Salem, **$50,500.** Est. $71,905. CD 6/22.

●**†Wash., Fort Lewis** — DWELLINGS — U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 18 eight-family row type dwelling units, and utilities for 18 eight-row type dwellings, to Tacoma Constr. & Eng. Co. S. 32 and G St., Tacoma, **$1,582,200** and **$226,000** respectively. CD 5/26.

●**Wash., Fort Steilacoom**—WARD—State Dpt. P. Institutions, Olympia, completing 500 patient male ward bldg. at Western State Hospital, to MacDonald Bldg. Co., 1517 South Tacoma Way, Tacoma, **$1,260,338.** Bids 6/28. CD 7/5, under LB.

Alta., Edmonton—LABORATORY—Dpt. P. Wks., Edmonton, 110x162 ft., brick, concrete laboratory, University of Alberta Campus, to Bennett & White of Edmonton, Ltd., 11239 83 St., Edmonton, **$528,000.** CD 1/15/45

Ont., Fort William — HOUSING — Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg, Man., 100 houses, to Claydon Co., Ltd., 16 Victoria Block. Approx. **$700,000.** Bids 5/17. CD 5/9.

Ont., Sault Ste Marie—HOME FOR AGED—Municipality, home for aged, to Jannison & Scott, 526 Albert St., **$473,124.** Rounthwaite & Fairfield, 22 Harbord St., Toronto, archts. CD 2/18/48.

COMMERCIAL BUILDINGS

BIDS ASKED

July 19

Ont., London — TELEPHONE CENTER — Prack & Prack, archts., 310 Main St., E. Hamilton, and F. A. Williams, archt., c/o owner, 1 story, 148x250 ft. part second story, rein.-con. steel, brick telephone work center, for Bell Telephone Co. of Canada, Ltd., 76 Adelaide St. W., Toronto. Approx. $275,000.

July 20

S. D., Sioux Falls—DORMITORY—North America Baptist Theological Seminary, Sioux Falls, dormitory and class room $300,000. Perkins & Mc Wayne, 322 Paulton Bldg., archts. CD 11/10, under LB.

July 29

Ark., Arkadelphia — LIBRARY — Ouachita College, Arkadelphia, library and science bldg. $425,000. Wittenberg, Delony & Davidson, Pyramid Bldg., Little Rock, archts., CD 6/3.

Bids Asked

●**†O., Cincinnati**—RESIDENCES—Seven Hills Homestead Assn., 1820 Central Parkway, general contract 600 brick and frame residences. $4,000,000. Findley C. Brook, 1820 Central Parkway, archt., R. A. Ferguson & Assoc., 1820 Central Parkway, owners agt.

SOON LETS CONTRACT

Calif., Sacramento — CONVENT — Roman Catholic Archbishop, Sacramento Diocese, Sacramento, soon lets contract 2 story, rein.-con. St. Francis Convent. $250,000.

LOW BIDDERS

●**Mo., Kirksville**—HOSPITAL—Kirksville College of Osteopathy & Surgery, Kirksville, June 21, general contract 4 story, bsmnt., brick, concrete hospital, from J. E. Dunn Constr. Co., 929 Holmes St., Kansas City, Mo., **$1,173,616.** CD 6/8.

Mo., Overland (St. Louis, Zone 14, P. O.)—CHURCH—All Souls Catholic Parish, Rev. Walter Rucker, pastor, 9602 Milton Ave., rejected bids May 25, 1 story, bsmnt. 78x141 ft., brick concrete stone church, 2 story, bsmnt., 41x67 ft. concrete, brick stone rectory, Hood and Tennyson Aves. Approx. **$250,000.** Project postponed indefinitely. CD 5/18.

Tenn., Knoxville — HOSPITAL — East Tennessee Crippled Childrens Hospital, 1912 Laurel Ave., rejected bids May 31, hospital addn, L. B. **$369,000.** CD 6/8, under LB.

CONTRACTS AWARDED

Calif., Concord — HOUSING — Mira Vista Builders, Inc., 1133 Ohio Ave., Richmond, 50 residences, Mira Vista Terrace. Owner builds. Approx. **$250,000.**

Calif., Pittsburg—HOUSING—Paul Conger, 242 E. 10 St., 54 houses, Bay Knolls subdivision. Owner builds. Approx. **$250,000.**

Calif., San Mateo—APARTMENTS—M. J. Ryan, Palace Hotel, San Francisco, 10½ story apartment, to Dinwiddie Constr. Co., 210 Crocker Bldg., San Francisco, **$952,000.** Bids 6/30.

Ga., Atlanta — APARTMENTS — Murphy apartments, c/o Roy D. Warren Co., 22 Marietta Street Bldg., 14 apartments, to S. E. Aiken, Inc., c/o owner. Approx. **$300,000.** CD 4/27.

La., New Orleans — HOUSING — Cartier Manor, Inc., c/o contractor, 55 houses, to Lawrence P. Smith, 3141 De Saix Blvd. Approx. **$400,000.**

Minn., Rochester—HOSPITAL—St. Marys Hospital, Rochester, general contract altering fifth and sixth stories, East Wing, incl. orthopedic sect., X-ray rooms, etc., to C. C. Pahenhart, Rochester. Approx. **$330,000.** Marguolo & Quick, 4908 Delmar St., St. Louis, Mo., archts. R. V. McCann, 606 Syndicate Bldg., Minneapolis, assoc. archt.

Minn., St. Paul—CHURCH and SCHOOL—Church of the Immaculate of Mary, c/o contractor, general contract 2 and 3 story, brick, stone church and school, Summit and Snelling Aves., to McGeough Bros., 1954 University Ave., St. Paul. Approx. **$355,000.** R. V. McCann, 606 Syndicate Bldg., Minneapolis, archt.

●**Mo., Brentwood (St. Louis, Zone 17, P. O.)**—HOUSING—Shelby Constr. Co., 4320 Paris Ave., New Orleans, La., several 2 story brick, concrete bldgs., 180 acre tract bounded by Brentwood Blvd., Eager Rd., York Village and line north of Lawn Ave., own forces. Approx. **$12,000,000-$15,000,000.** CD 6/10.

●**Mo., Kansas City** — HOSPITAL — Menorah Hospital, c/o Dr. David Littauer, dir., 4949 Rockhill St., general contract superstructure 4 story, bsmnt., T-shaped, 41x170 and 41x120 ft., rein.-con., brick, steel, stone hospital, 2 story, bsmnt., sub bsmnt., 33x88 ft. bldg., 4949 Rockhill Rd., to Millstone Constr. Co., 4343 Clayton Ave., St. Louis, Zone 10, total est. **$2,064,000.** CD 12/1/44

N. Y., Jackson Heights — PAROCHIAL SCHOOL, etc.—Parish of Our Lady of the Rosary of Fatima, Jackson Heights, parochial school and church, 80 St. and 25 Ave to Tweedy Eng. Co., 155-31 Jamaica Ave., Jamaica. Approx. **$400,000.** CD 4/27.

O., Maple Heights—THEATRE—Broadway Libbey, Inc., 2441 Overlook Rd., Shaker Heights, 1 story, 90x325 ft., brick, steel theater, 15716 Broadway Ave., separate contracts. Approx. **$400,000.** George Eberling, 234 Colonial Arcade, Cleveland, archt.

O., Shaker Heights—APARTMENT—Marchmont Court Apartments, Inc., 3270 Warrensville Center Rd 45 suite apartments, 3290 Warrensville Center Bd., separate contracts. **$320,000.** M. P. Halperin, 7016 Euclid Ave., Cleveland, archt.

S. C., Greenville — APARTMENT — Calhoun Towers, c/o contractor, apartment development, to Daniel Constr. Co., Greenville. Approx. **$300,000.**

●**N. S., Halifax**—ARTS and ADMINISTRATION—Bd. Governors Dalhousie University, Halifax, Arts and Administration Bldg., Dalhousie College and University, Studney Rd., to E. G. M. Cape & Co., Ltd., 620 Cathcart St., Montreal, Que. Approx. **$1,459,667.** Bids 6/20. CD 6/13.

Que., Montreal — HOUSING — F. Bernard, 7245 Des Erables St., 20 duplexes. Owner builds. **$300,000.**

Que., Verdun—HOUSING—Riverdale Development Co., Inc. 6207 Bannatyne Ave., 22 concrete, brick duplex houses. Owner builds. **$275,000.**

INDUSTRIAL BUILDINGS

BIDS ASKED

July 18

Que., Montreal—GARAGE, etc.—Bell Telephone Co. of Canada, 1050 Beaver Hall Hill, 2 story, bsmnt., 207x245 ft., rein.-con., steel, brick garage and office. Ross & Assoc., Dominion Sq., Bldg., archts. F. J. Macnab, ch. engr.

August 15

Neb., Lincoln—WAREHOUSE—Omar Inc., 1910 Harney St., Omaha, branch warehouse. $90,000. Luria Eng. Co., 500 5 Ave., New York, N. Y., engr. and archt. CD 6/14, under LB.

SOON LETS CONTRACT

N. D., Grand Forks—POWER PLANT—Minnkota Power Co-operative, Grand Forks, soon lets contract electrical constr., main chief power plant, main steam power plant bldg., pumphouse, circulating water discharge structure, ash storage silo, coal handling equip., traveling crane, water screens. Ellerbe & Co., 1st Natl. Bank Bldg., St. Paul, Minn., engrs. CD 2/19/47.

O., Cleveland—WAREHOUSE, etc.—At office M. Waldemar Meckes, c/o W. G. Smith Co., 2191 W. 110 St., soon lets contract 2 story, 80x92 ft., 7,200 sq. ft. block, brick, steel warehouse and office. Approx. $70,000. McGeorge & Hargeth & Assoc., 7016 Euclid Ave., archts.

●**Pa., West Mifflin**—ADMINISTRATION, etc.—Westinghouse Electric Corp., Atomic Power Div., West Mifflin, soon lets contract administration and laboratory bldg. $1,000,000. CD 4/1.

Wash., Seattle—PLANT—Lyle Branchflower 15 Ave. N. W. and Shilshole Ave., soon lets contract 2 story, bsmnt., 80x100 ft., rein.-con. fish processing plant. $160,000. S. Ivarsson, Skinner Bldg., Zone 1, engr. CD 8/12/48.

LOW BIDDERS

Ala., Mobile—MILL—Ruberoid Co. c/o low bidder, June 29, mill, from J. P. Ewin, Inc., Chickasaw St., **$214,000.** CD 6/27.

Tex., Houston — WAREHOUSE — Moncrief Lenoir Mfg. Co., 2103 Lyons St., rejected bids June 10, warehouse, L. B. **$204,360.** CD 6/20, under LB.

Wash., Seattle — FREIGHT TERMINAL — Consolidated Freightways, Inc., 1565 6 Ave. S., 3 main bldgs. for freight terminal, from John H. Sellen Constr. Co., 228 9 Ave. N., **$308,553.** Young & Richardson, Central Bldg., archts.

CONTRACTS AWARDED

Ala., Gadsden — LAUNDRY, etc. — Quality Laundry & Furrier, c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, laundry and furrier, to Borders Constr. Co., Gadsden. Approx. **$75,000.** Bids 6/17 CD 6/21.

Fla., Jacksonville—PLANT—H. W. Lay & Co., 173 Boulevard N. E., Atlanta, Ga., steel, concrete, brick mfg. plant, incl. warehouse and branch office, Beaver St. and Mc Duff Ave., to Ira H. Hardin Co., Zahner Bldg., Atlanta, Ga., **$100,000.** Awarded 6/29.

Fla., Sarasota—POWER HOUSE—Florida Power & Light Co., Ingraham Bldg., Miami, increasing powerhouse and generating facilities of their West Coast power plant to 18,000 kw. capacity. Owner builds. Approx. **$350,000.** Awarded 7/3.

Ga., Valdosta — WAREHOUSE — Valdosta Flower Co., c/o Felton Davis, archt., 1501 Slater St., warehouse. Owner builds. Approx. **$68,000.**

Ill., Beardstown — GRAIN ELEVATOR — Beardstown Grain Terminal, Inc., c/o Fred Curry & John Dutch, rein.-con. grain elevator, to Jack McCord Constr. Co., 810 W. Main St., Approx. **$80,000.**

Ill., Centralia—COALING STATION—Illinois Central R. R. Co., O. H. Mottier, vice pres. and ch. engr., 109 E. Roosevelt Rd., Chicago, rein.-con. coaling station, to Ogle Constr. Co., 38 E. Jackson Blvd., Chicago, **$78,150.**

Ill., Hanover—FACTORY—Carl T. Mitchell, 122 S. Grove St., Elgin, 1 story factory, to G. Meadows, 479 Mary St., Elgin, **$68,000.** Awarded 6/21.

Ind., LaPorte—FACTORY—American Rubber Products Co., 315 Brighton St., brick, concrete factory, to Larson Danielson Constr. Co., 302 Tyler St., LaPorte, Approx. **$100,000.** Awarded 6/2. Boyd E. Phelps, 232 Franklin St., Michigan City, archt.

Ia., Des Moines—PLANT—J. E. Fredregill, 2808 E. Grand Ave., concrete products plant, day labor, **$75,000.**

Ky., Louisville — GARAGE — Montgomery Auto Co., 121 W. Liberty St., auto garage addn. Owner builds. **$75,000.**

La., Bossier City — WAREHOUSE, etc. — Bossier Rural Electric Membership Corp., Bossier City, warehouse and office, to J. M. Brown Constr. Co., 317 Highland Ave., Shreveport. Approx. **$75,000.** CD 4/29.

La., Harvey — WAREHOUSE, etc. — Texas Co., c/o contractor, warehouse and office, to H. K. Ferguson Co., 1054 A. & M. Bldg., Houston, Tex. Approx. **$150,000.**

Mo., Joplin—WAREHOUSE—A. Y. McDonald Mfg. Co., 1201 Dodge St., Omaha, Neb., warehouse, to B. & G. Constr. Co., 411 E. 6 St., Carthage, **$109,000.** Swanson-Terney-Brey, Relance Bldg., Kansas City, Mo., archts.

Neb., Holdrege — GRAIN ELEVATOR — Equity Exchange, Holdrege, concrete grain elevator, to Chalmers & Borton Constr. Co., Hutchinson, Kan., **$125,000.**

O., Mansfield—WAREHOUSE—Omar Inc., 1910 Harney St., Omaha, Neb., branch warehouse, to O. J. Paul Co., Zanesville, **$90,000.** Luria Eng. Co., 500 5 Ave., New York, N. Y., engr. and archt.

Tenn., Chattanooga—BOTTLING PLANT—Double Cola Bottling Co., c/o Selmon T. Franklin, archt., 421 Poplar St., bottling plant, to Mark K. Wilson Co., Chamberlin Bldg. Approx. **$70,000.**

Tenn., Chattanooga — BUS TERMINAL — Trailways Bus Co., c/o contractor, bus terminal, to T. U. Parks, Tuxedo Ave. Approx. **$68,000.**

Tex., Houston—LUMBER YARD—A. B. C. Lumber Co., 3116 Jensen Dr., lumber yard expans. Owner builds. **$78,000.**

Tex., Lufkin—LIGHT PLANT, etc.—Texas Power & Light Co., Interurban Bldg., Dallas, light plant and power house remodeling, some transmission lines, Keltys area, own forces, **$90,000.** CD 1/9/46.

Tex., McKinney—TEXTILE UNIT—Texas Textile Mills, McKinney, textile unit, own forces. **$245,000.** CD 5/12/48.

Newfoundland, St. Johns — FACTORY — Standard Mfg. Co. Ltd., 14 Water St., factory day labor, **$175,000.**

Ont., Hearst—GARAGE—Lafontaine Bros., Hearst, concrete garage, to Caron Constr. Co., Timmins, **$95,000.**

Ont., Toronto—FACTORY—Canadian Metal Window & Steel Products Ltd., 160 River St., factory addns. Owner builds, **$75,000.**

Que., Montreal — PLANT — International Paint Canada Ltd., 6700 Park Ave., 1 story, bsmnt., 60x180 ft., concrete, steel brick plant, to Ross & Anglin Ltd., 4400 St. Catherine St. W., **$330,000.** D. J. MacDonald, 5255 Coolbrook Ave., engr. CD 12/15.

Que., Montreal—GARAGE—Reliable Transport, 1060 Champlain St., concrete, brick garage, to J. Carpentier, 1068 St Elizabeth St., **$75,000.** F Consiglio, 1502 Ste. Catherine St. W., archt.

UNCLASSIFIED

July 19

Georgia—RURAL DISTRIBUTION LINES—Carroll Electric Membership Corp., Carrollton, 207 mi. rural distr. lines, Carroll, Haralson, Heard, Paulding and Polk Counties. Plans deposit $25. Southern Eng. Co., 699 Spring St. N. W., Atlanta, engr. CD 6/10.

July 22

Missouri—RURAL DISTRIBUTION LINES—Cuivre River Electric Co-operative, John W. Schaper, pres., Troy, 285.82 mi. 7.2 KV rural distr. lines, Lincoln and Pike counties, Proj. Missouri 57 E Lincoln, Sect. 1; 260.06 mi. 7.2 KV rural distr. lines, St. Charles and Warren Counties, Proj. Missouri 57 E Lincoln, Sect. 2. Plans deposit $25. Drazen & Assoc., 8135 Forsyth Blvd., Clayton, St. Louis, engrs.

Oregon—TROUT HATCHERY—State Game Comn., 1634 S. W Alder St., Portland, imprv. Rock Creek Trout Hatchery, incl. 93 ft. long concrete dam, intake box, pipelines, nursery and brood ponds and assistant's dwelling. Douglas Co. Plans deposit $25. C. A. Lockwood, c/o owner, engr.

About July 28

†N. M., Albuquerque—STEAM DISTRIBUTION—U. S. Eng., P. O. Box 1538, AEC steam distr. sys., Sandia Base, Serial No. 291-50-4.

July 29

N. Y., Hempstead—COMFORT STATIONS—Long Island State Park Comn., Babylon, comfort station, shelter, etc.

August 5

†Colorado—TRANSMISSION LINES—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver. Flatiron-Longmont-Leyner and Leyner-Brighton 115 kilovolt transmission lines. Colorado-Big Thompson Proj., near Loveland, Longmont and Brighton, Spec. 2725.

LOW BIDDERS

Calif., San Francisco—TRAFFIC SIGNALS—Dpt. P. Wks., City Hall, June 29, traffic signals, Alemany Blvd., from Mission St. to San Jose Ave., from Eaton & Smith, 715 Ocean Ave., **$118,400.**

†D. C., Wash.—RAMP, etc.—P. Wks. Office, Naval Gun Factory, Wash., D. C., cancelled bids to have been opened June 29. loading platform extens., ramp, concrete road for Bldg. 17, Naval Communication Center, Spec. 22873. CD 6/24.

La., Kentwood—NATURAL GAS SYSTEM—Town, June 28, natural gas transmission lines, distr. sys., from L. O. Raborn, Baton Rouge, **$196,118.** CD 6/9.

La., Lake Charles—LIVESTOCK ARENA—Louisiana State University, c/o low bidder, June 28, remodeling livestock arena at John McNeese Junior College, from Bartley & Binnings, 433 Gravier St., New Orleans, **$114,764.** CD 6/9.

†Md., Fort George G. Meade—TANK PARK—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C., June 24, tank park, Base Bid 1, from Smith, DeCourse & Christhilf 5106 York Rd., Baltimore, Zone 12, **$578,800.** Est. $536,320. CD 6/16.

Md., Baltimore—CONDUIT—Mayor & City Council, City Hall, June 29, Conduit Constr. Contr. 6, from Peter D'Adamo & Son, 2441 N. Charles St., **$77,752.** W. Rayner Straus, 320 Municipal Bldg., mech. elec. engr. CD 6/21.

†N. C., Camp Lejeune (Br. New Bern)—POWER FEEDER, etc.—Pub. Wks. Office, Marine Barracks, Camp Lejeune, June 22, underground and overhead 12,470 volt electrical power feeder and 999 kva substation, Spec. 22815, from Thompson Electrical Co., 30, " Dawson St., Raleigh, **$59,408.** CD 6/8.

North Dakota — RURAL DISTRIBUTION LINES—McKenzie Electric Co-operative, Watford City, June 23, labor for 362.4 mi. rural distr. lines, McKenzie Co., from Reither Constr. Co., Aitkin, Minn., **$104,442.** CD 3/30.

North Dakota — RURAL DISTRIBUTION LINES—Oliver Mercer Electric Co-operative, Hazen, June 24, rural distr. lines, Sect. C-1, 313.2 mi., from Rue Contg. Co., Fargo, **$362,743;** Sect. C-2, 313.2 mi., from O'Leary and Stotko, Hancock, Minn., **$330,697,** both Oliver Co. CD 11/17.

†Oregon—TRANSMISSION LINE—Clearing Right-of-way—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, June 15, clearing right-of-way 13.45 mi. Mapleton-Canary sect. Mapleton-Reedsport 115 kv. transmission line, Inv. 4641, Lane Co., from A. L. Morgan, 11815 Interurban St., Seattle, Wash., **$153,616.** CD 5/27.

†Oregon—TRANSMISSION LINE CLEARING RIGHT-OF-WAY—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, June 28, clearing right-of-way 13.3 mi. for county line-Reedsport sect. Mapleton-Reedsport 115 kv. transmisson line, Douglas Co., Inv. 4710, from A. L. Morgan, 11815 Interurban St., S. Seattle, Wash., **$92,161.**

Tex., San Antonio — STADIUM, etc. — San Antonio Independent School Dist., Lavaca and Water Sts., June 28, masonry, steel stadium-gymnasium concrete slab fdn., Sidney Lanier School, from Cunningham Constr. Co., P. O. Box 155, Grayson St. Station, **$192,423.** Atlee B. & Robert M. Ayres, Transit Tower, archts. CD 9/14/48.

†Washington — TOWER LINE — Bonneville Power Admin., 729 N. E. Oregon St., Portland 8, Ore., June 30, 21.2 mi. North Bonneville-Troutdale 230 kv steel tower line, Inv. 4706 Skamania and Clark Counties, from Midland Constr. Co., 9461½ Atlantic Blvd., Los Angeles, Calif., **$366,788.** CD 6/21.

CONTRACTS AWARDED

Fla., Tallahassee—ELECTRICAL SYSTEM—City, City Hall, Park and Adams Sts., electrical distr. sys. addns., to Southeastern Electric Co., Inc., Andalusia, Ala., **$206,350.** Bids 5/23. CD 6/30, under LB.

Ill., Mattoon—DRIVE-IN THEATRE—Outdoor Amusement Corp., R. O'Keefe, pres., Maatoon, drive-in theatre, 12 acre tract Rt. 16, near eastern city limits, to F. S. Morse & Son Co., Danville. Approx. **$120,000.**

Ind., Tell City—DRIVE-IN THEATRE—Mr. and Mrs. Willie Spears, Laconia, drive-in theatre, junction Hys. 27 and 237, 2 mi. east of city limits, to Ohio Valley Co. Tell City, Approx. **$50,000.**

Mississippi—RURAL DISTRIBUTION LINES—Central Electric Power Assn., Carthage, 125 mi. single phase power lines. Leake Co., to Crews & Ward Constr. Co., Columbus, **$133,408.** Awarded 6/24. CD 7/3/48.

North Dakota — RURAL DISTRIBUTION LINES — Burke-Divide Electric Co-operative, Columbus, rural distr. lines, 322 mi. Sec. C-1, Burke and Ward Counties, to Swenson Constr. Co., Columbus, **$312,013;** 269 mi. Sec C-2, Burke, Renville and Ward Counties, to Rosebud Constr. Co., Minot, **$273,933.** Bids 6/22. CD 6/9.

North Dakota — RURAL DISTRIBUTION LINES—William Electric Co-operative, Williston, labor for 285.18 mi. rural distr. lines, Williams Co., to Swenson Constr. Co., Columbus, **$73,337.** Bids 6/21. CD 6/9.

Oregon — TRANSMISSION LINE, Clearing Right-of-Way—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, clearing right-of-way 10.3 mi. for Reedsport-Lakeside sect. Reedsport-Coos Bay 115 kv. transmission line, Douglas Co., Inv. 4678, to Keechelus Logging Co., 108 W. 79 St., Seattle, Wash., **$63,300.** Bids 6/24, awarded 6/29. CD 6/3.

†Oregon—SYNCHRONOUS CONDENSOR—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, mfg. synchronous condensor at Goshen substation, Lane Co., to Elliott Co., Jeanette, Pa., **$508,832.** Awarded 7/1.

South Carolina — RURAL DISTRIBUTION LINES — Salkehatchie Electric Co-operative, Barnwell, 59.9 mi. rural distr. lines, Barnwell and Allendale Counties, to Little Electric Co., Hartsville, **$58,065.** Bids 6/21. McCall-Thomas Eng. Co., Orangeburg, engrs.

South Dakota — RURAL DISTRIBUTION LINES — Inter-County Electric Assn., Mitchell, 523 mi. rural distr. lines, Davison Co., to Ferguson-Diehl Co., Jefferson, Ia., **$516,627.** Bids 6/23. CD 6/15.

Texas—NATURAL GAS PIPELINE—Shell Oil Co., Shell Bldg., Houston, natural gas pipeline gathering sys., Colorado, Lavaca and De Witt Counties, to Fluor Corp. Ltd., M. Esperson Bldg., Houston, **$200,000.**

Tex., Giddings—GAS SYSTEM—United Gas Corp., United Gas Bldg., Houston, natural gas sys. Owner builds. Approx. **$75,000.**

Tex., San Antonio — ELECTRICAL WORK, etc.—Belmeade Corp., 1517 Majestic Bldg., electrical contract for 138 apartment units and outside lines, waterlines to The Farwell Co., 211 Probandt St., **$113,674.** addnl. site work, grading, drainage, levelling, Belmeade addn., force account, **$40,000.** CD 1/26, under Commercial Buildings.

Tex., San Antonio—STREET LIGHTING—City Public Service Board, 201 N. St. Marys St., Unit 3, street electric lighting, Purchase and Hire. **$450,000.** CD 11/11/48.

Tex., San Antonio — COLISEUM SITE IMPRVS.—Bexar Co. Pub. Bldgs. Dpt., Courthouse, site imprvs., landscaping, fences, curbing, lighting, zone grading, drainage, leveling roads and parking area imprvs., incl. grading, drainage, graveling, fencing, to Dean Word, 446 E. Rosewood St., **$153,868.** Bids 6/27. CD 7/5, under LB.

N. S., Bridgewater — RINK — Bridgewater Arena Co., Inc., Bridgewater, ice rink, to Harley Spence, Bridgewater, **$75,000.** C. D. Davison, 2 Prince St., Halifax, archt.

Ont., Dixie—ARENA—Arena Gardens, Inc., Dixie, concrete arena, to Pyramid Concrete Products, Ltd., 17 John St., Brantford, **$130,000.** CD 4/14.

PROPOSED PROJECTS

WATER SUPPLY

Ill., Springfield—Springfield City Water Light & Power Dpt., Springfield, water supply sys. imprvs., incl. 4 m. g. clear well, 16,500 lin. ft. 16 in. main, 2,600 ft 10 in. main $435,000. Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., engrs. CD 7/20/44.

Ind., Columbus—Bd. P. Wks., City Hall, WW imprvs., incl. deep well sys., electrification of steam plant, distr. sys. rehabilitation, filter plant alterations, iron removal equip., **$300,000.**

Ind., Muncie—Muncie Waterworks Co., Burlington and Columbia Heights Aves., electric pumps, **$75,000;** filter beds and bldg. **$150,000;** sedimentation tank, **$100,000;** watermains extens., equip., **$120,000.** CD 2/20/48.

Kan., Quindaro—City, City Hall, waterline extens. **$150,000.**

O., Salem—City, Frank K. Wilson, Service Dir., Salem, water supply. **$250,000.** Chester Eng. Co., 210 E. Park Way, Pittsburgh, Pa., consult. engr. CD 1/28.

Tex., Houston—Harris Co. Water Control & Imprvt. Dist. 22, Courthouse, WW comprises Old Spanish Trail acres zone. **$100,000.** Frank

Utah, Layton—Town, c/o John M. Park, clk., Layton, voted **$120,000** bonds, water sys. extens., misc. imprvs. Win Templeton, Dooly Bldg., Salt Lake City, consult. engr.

SEWERS, WASTE DISPOSAL

Tex., Grand Prairie—City, E. Carlyle Smith, mayor, sewage disposal plant, **$90,000;** sanitary sewer lines, **$100,000;** storm sewers, **$75,000.** CD 11/10/47.

Wis., Kenosha—City, storm sewers in various streets, **$300,000.** R. M. Smith, city engr.

BRIDGES

●O., Youngstown—City, City Hall, bond election Nov. 8, New Division St. bridge, high level type, from present bridge to W. Federal St., spanning Mahoning River, Brier Hill plant of Youngstown Sheet and Tube Co. and more than 20 railroad tracks. **$1,700,000.** CD 2/28.

STREETS AND ROADS

O., Ravenna—Portage Co., Ravenna, imprv. roads, **$120,000.** Paul Shafer, co. engr.

Okla., Enid—City, voted bonds resurf. business district. **$199,000.** V. G. Thompson, 1100 W. Main St., Oklahoma City, consult. engr. CD 6/16.

●Tex., Beaumont—Jefferson Co. Courthouse, defeated bonds road constr., imprvs. paving, Precinct 1, **$668,500;** Precinct 2, **$600,000;** Precinct 3, **$600,000;** Precinct 4, **$600,000.** Charles L. Davidson, county engr. CD 6/14.

Tex., Edinburg—Hidalgo County Road Dist. 9, Edinburg, cancelled bond election July 15, road constr and imprvs. **$238,000.** CD 6/27.

Tex., Fort Worth—Tarrant Co., Fort Worth, road reconstruction, imprvs., grading, surf., Precinct 1, **$175,000;** Precinct 2, **$150,000;** Precinct 3, **$125,000,** Matt Walker, co. engr.

Tex., Grand Prairie—City, E. Carlyle Smith, mayor, street wid'n., paving. **$200,000.** CD 6/20/46.

Tex., San Antonio—Bexar Co. Courthouse, reconstruction, repaving, grading, drainage several roads, Precinct 1, **$150,000;** Precinct 4, **$250,000;** resurf., reconditioning several roads Precinct 3, **$175,000.**

EARTHWORK, WATERWAYS

Wash., Olympia—Port of Olympia, Olympia, bulkheading westside waterfront. **$200,000.**

B. C., New Westminster—City, City Hall, rebuilding concrete retaining wall, Columbia St. **$250,000.** Swan, Rhodes & Wooster, 718 Granville St., Vancouver, engrs. CD 3/4.

AIRPORTS AND AIRBASES

●Ark., Little Rock—RUNWAY—City, plans by Bruggeman, Swaim & Allen, Gazette Bldg., runway extens., one new runway, and terminal bldg. **$2,637,000.** CD 4/18.

Calif., Palmdale—BUILDING—Bd. Supervs. Los Angeles Co., 501 Hall of Records, plans by Heitschmidt & Matchan, 449 S. Beaudry St., Los Angeles, airport admin. bldg., at Palmdale Airport. **$305,697.**

Tex., Beaumont—AIRPORT—Jefferson Co. Courthouse, defeated bonds county airport imprv. **$460,000.** Charles L. Davidson, co. engr. CD 5/27.

LATIN AMERICA

Mexico, Celaya — Refrigeration Nieto, S. A. Altamirano, 30, Celaya, Gto, Mexico, plans electric refrigerator factory. $250,000.

Mexico, Torreon—State Govt., Palacio del Estado, Saltillo, Coahuila, plans city jail, cotton tax to finance bldg. **$250,000.**

PUBLIC BUILDINGS

Colo., Denver—SCHOOL—School Dist. 1, City and Denver Co., 414 14 St., plans by C. Francis Pillsbury, archt. and engr., 421 Midland Savings Bldg., Denver, 2 story, part bsmnt., 170x270 ft. L-shaped rein.-con. frame, brick, 13 classroom, kindergarten, library, etc., grade school, to be known as Lucius Hallett School, 30 and Jasmine Sts., approx. **$250,000.**

Conn., Danbury—SCHOOL—City Bd. Educ., Danbury, plans by Philip Nichols Sunderland, Inc., 81 West St., Danbury, brick, steel, concrete school, Hayestown Ave. **$450,000.**

Conn., Montville—JAIL—Comrs. New London Co., Court house, New London, brick, steel, concrete jail, **$250,000.**

●Kan., Great Bend—SCHOOL—Bd. Educ. plans by Lorentz, Schmidt, McVay & Peddie, 1832 E. 2 St., Wichita, high school. **$1,256,700.** CD 4/20.

Mass., Agawam—SCHOOL—Town, School Dpt., 100 Main St., W. C. Bodwitha, chn., plans by Paul B. Johnson, 66 Vernon St., Springfield, 2 story, brick school, Center St., Approx. **$250,000.**

Mass., Attleboro — SCHOOL — City, Bd. Educ., City Hall, plans by Architects Collaborative, 1430 Massachusetts Ave., Cambridge, brick, steel high school, trade school addn., **$250,000.** CD 10/28.

●Mass., Boston—HOSPITAL—Commonwealth of Mass., Dpt. P. Health, State House, plans J. Metyko, Scanlan Bldg., consult. engr.

by Curtin & Riley 45 Newbury St., hospital, nurses home and out patient dpt. in Forest Hills. **$12,500,000.**

●**Mass., Lynn** — HOUSING — City of Lynn Housing Auth., J. Cavanaugh, chn., 58 Andrews St., 2 story, brick frame housing, inc. 300 to 400 units, Winnepurkit Ave., Approx. **$3,000,000.**

●**Mass., Worcester**—HOUSING—City of Worcester Housing Auth., R. P. Harold, chn., City Hall, plans by F. R. Williams, 20 Elm St., G. A. Johnson, 390 Main St. and L. W. Briggs Co., 90 Park Ave., 390 unit housing, Home Farm Tract, Boylston St. **$3,900,000.** CD 3/4.

Minn., Bemidji—DORMITORY—State Dpt. Admin., 19 State Capitol, St. Paul, plans by T. J. Shefchik, 308 Lonsdale Bldg., Duluth, dormitory, State Teachers College. **$700,000.**

●**Minn., Faribault**—HOSPITAL—State, Dpt. Admin., 19 State Capitol, St. Paul, plans by G. Shifflet, Barkstrom & Assoc., 17 W. Lake St., Minneapolis, hospital addn., power plant, State School for Feeble Minded. **$1,750,000.**

Minn., Mankato—SCHOOL—State Dpt. Admin., 19 State Capitol, St. Paul, plans by McEnary & Krafft, 110 McKnight Bldg., Minneapolis, classroom addn. State Teachers College. **$800,000.**

Minn., Maple Plain—HIGH SCHOOL—Bd. Educ., Maple Plain, plans by G. Shifflet, Blackstrom & Assoc., 17 W. Franklin Ave., Minneapolis, 1 and 2 story, brick Junior-Senior High School. **$450,000.**

Minn., St. Cloud—LIBRARY—State Dpt. Admin., 19 State Capitol, St. Paul, plans by L. C. Pinault, St. Cloud, library bldg., State Teachers College. **$500,000.**

Minn., Winona—PHYSICAL EDUCATION—State Dpt. Admin., 19 State Capitol, St. Paul, plans by Boyum, Schubert & Sorensen, 300 Exchange Bldg., physical education bldg., State Teachers College. **$750,000.**

N. J., Ashland—SCHOOL—Boro School Bd., Ashland, approved bond issue school. **$250,000.**

♦**N. J., Atlantic City**—ARMORY—U. S. Navy Dpt., P. Wks. office, Phila. Naval Base, Phila., Pa., plans by Kelley & Gruzen, 80 5 Ave., New York, N. Y., armory addn., NOY 18924. **$200,000.** CD 6/17.

N. J., Princeton — HOUSING — Princeton Housing Auth., 190 Mercer St., sketches completed by Mathew C. Fleming, 10 Nassau St., housing, Lyle St., etc. **$800,000.**

●**N. J., Trenton**—SCHOOL—Hamilton Twp. Bd. Educ., 2069 Greenwood Ave., bond issue approved grammar school, approx. **$500,000;** Junior High School **$1,500,000.**

N. Y., New York—BOILER HOUSE—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by A. J. Daidone, c/o owner, boiler house, Welfare Island. **$450,000.**

O., Ravenna—SCHOOL—Bd. Educ., Ravenna, school replacing Chestnut St. School Approx. **$600,000;** Ravenna High and W. Main Schools addns. **$350,000.**

●**Okla., Tulsa** — COURT — Tulsa Co. Tulsa, bond election Sept. 27, county court bldg. **$4,000,000.**

Ore., Tillamook — HIGH SCHOOL — Tillamook School Dist., Tillamook, voted bonds, high school. **$800,000.** Lee A. Thomas, Equitable Bldg., Portland, archt.

●**Ore., Toledo**—SCHOOLS—Lincoln Co. School Dist., Courthouse, voted bonds, schools, at Newport, **$399,600;** Taft **$226,800;** Waldport, **$208,800;** Toledo **$175,000;** Siletz, **$125,000;** Delake **$108,000;** Yachats **$46,800;** Rose Lodge **$30,000;** Eddybille **$20,000;** Harlan **$10,000.**

●**Pa., Doylestown**—HIGH SCHOOL—Central Bucks Co. Joint School Bd., Doylestown, plans by Davis, Dunlap & Carver, 1717 Sansom St., Phila., high school. **$1,250,000.** Gravell & Duncan, 1600 Walnut St., Phila., consult. archts. CD 3/31.

●**Pa., Phila**—YOUTH STUDIES CENTER—Comrs. Phila. Co., City Hall, plans by Carroll, Grisdale & Van Allen, 1616 Walnut St., youth studies center. **$2,000,000.**

●**Tenn., Clarksville**—HOSPITAL—Clarksville Hospital Bd., Clarksville, hospital. **$1,250,000.**

Tex., Beaumont — DORMITORY, etc. — Lamar State Technological College, Port Arthur Rd. and Virginia Sts., dormitory. **$300,000;** laboratory units. **$250,000;** classroom bldg. **$300,000,** masonry constr. CD 3/3/47.

COMMERCIAL BUILDINGS

Ark., Little Rock — MEDICAL — Arkansas Baptist Hospital, 1700 W. 13 St., medical bldg. **$500,000.**

●**Calif., Lafayette**—RESIDENCES—Henry H. Andrews, St. Marys Rd., Lafayette, 100 residences on 60 acre tract. **$1,000,000.**

Conn., Farmington — MONASTERY, etc. — Passionist Fathers, Very Rev. Gabriel Gorman, 1901 West St., Union City, N. J., plans by Provost & Wright, Inc., Manchester, N. H., brick, stone monastery and retreat for 30 priests and 75 laymen, Tuxxis Rd. **$700,000.**

●**Ill., Chicago** — HOUSING — Julius Taxay & Assoc., 3400 N. Lakeshore Dr., plans by Shaw Metz & Dolio, 208 S. LaSalle St., brick, steel, housing, incl. 900 units, Cottage Grove Ave., to 85 St. and Eastward, **$7,000,000.**

●**Mass., Cambridge**—MACHINE TOOL LABORATORY—Massachusetts Institute of Technology, 77 Massachusetts Ave., plans by Perry, Shaw & Hepburn, 31 St. James Ave., Boston, machine tool laboratory, **$1,000,000.** CD 1/4.

Mass., East Boston—HOUSING—Max Yorks, 167 Chelsea St., plans by B. C. Gallo, 409 Chelsea St., 105 houses, Orient Heights, Waldermar Overlook and Montinarency Sts. Approx. **$950,000.**

Mich., Sturgis—CHURCH, etc.—Bd. Trustees, Trinity Lutheran Church, N. Maple Ave., church, offices, parsonage, parochial school, parish house, 2 acre site, S. Lakeview Ave., between Walker and Congress Sts.

Minn., St. Paul—FINE ARTS—Hamline University, president's office, 1536 Hewitt Ave., plans by H. B. Crommett, 2370 Buford Ave., fine arts bldg., Asbury St. and Taylor Ave., **$250,000.**

N. J., Bridgeton—THEATRE, etc.—Atlantic Theatres, Inc., 16 and Market Sts., Phila., Pa., rebuilding theatre and stores, **$500,000.**

N. Y., Auburndale — HOUSES — Beechwood Village, Inc., c/o G. W. Iser, 109 E. 29 St., New York, Zone 16, 48 one family houses, 39 Ave., Francis Lewis Blvd. and 192 St. **$600,000.**

N. Y., Brooklyn — APARTMENT — Congress Gardens, Inc., 16 Court St., Zone 2, plans by Lama, Proskauer & Prober, 383 Pearl St., Zone 1, 6 story appartment, 198-226 Congress St. **$800,000.**

N. Y., Flushing—APARTMENT—D. Minkin, c/o Kavy & Kavovitt, archts., 44 Court St., Brooklyn, Zone 2, 6 story apartment, Ash Ave. near Bowne St. **$800,000.**

N. Y., New York — APARTMENT — Albag Realty Corp., 99 Hudson St., Zone 13, plans by Glick & Gelbman, 400 E. Fordham Rd., Zone 58, apartment, 419-12-West End Ave., **$500,000.**

N. Y., New York—APARTMENT—Gramercy Development Corp., 340 W. 48 St., Zone 19, plans by Boak & Raad, 175 Fifth Ave., Zone 10, apartment, 9 Lexington Ave. **$500,000.**

O., Cleveland—CHURCH, etc.—St. Leo Catholic Parish, 4865 Broadview Rd., plans by Miller & Voinovich, 1011 Swetland Bldg., 1 story, brick, steel church and school, **$300,000.**

O., Marietta—DORMITORY—Marietta College, Marietta, plans by Jens Fredrick Larson, 331 Madison Ave., New York 17, N. Y., convert former bldgs. of Marietta Chair Co. into men's dormitory. **$300,000.**

●**Pa., Phila.**—HOSPITAL—Douglass Hospital, 50 St and Woodland Ave., and Penna. State Auth., Harrisburg, plans by George Wharton Pepper, Jr., 225 E. 15 St., hospital. **$3,000,000.** CD 5/7/48.

Tex., Austin—SCHOOL—St. Stephens Episcopal School, c/o Bishop John E. Hines, 2904 Bowman Rd., plans by Fehr & Granger, 502 E. 5 St., masonry boarding school unit for 60 students, 400 acre site, Chatauqua Hill. **$250,000.** CD 2/2.

Tex., San Antonio — DWELLINGS — E. J. Burke & Sons, 4220 S. Zarzamora St., addnl. high class dwelling project in vicinity of WOW hospital. **$450,000.**

Tex., San Antonio—DWELLINGS—Thurman Barrett & Assoc., 6109 S. Flores St., 100 dwellings off Rayburn Dr. **$550,000.**

INDUSTRIAL BUILDINGS

●**La., Lake Charles**—GENERATING UNIT—Gulf States Utilities Co., Beaumont, Tex., 40,000 kw. electric generating unit, **$1,750,000.**

●**Tex., Beaumont**—GENERATING UNIT—Gulf States Utilities Co., 362 Liberty St., 60,000 kw. addnl. generating unit, **$2,500,000.** CD 11/11/48.

Tex., Falfurrias—PLANT—La Gloria Corp., Driscoll Bldg., Corpus Christi, gasoline recovery plant. **$500,000.**

●**Wis., Green Bay**—WAREHOUSE, etc.—Wisconsin Public Service Corp., Bellen Bldg., plans by J. E. Somerville, 403 Walnut St., 2 story, bsmnt., and 1 story dock level 120x300 ft. rein.-con., steel, brick warehouse, office and service bldg., 1 story 140x180 ft. steel brick, garage, concrete fdn., floor, **$1,300,000.**

UNCLASSIFIED

Illinois — RURAL DISTRIBUTION LINES —McDonough Power Co-operative, Macomb, 28.6 mi. rural distr. lines, sys. imprvs., headquarters facilities, McDonough Co. **$315,000.** CD 4/29/48.

Ill., Springfield — GOLF COURSE — City Water Light & Power Dpt., Springfield, plans by Robert Bruce Harris, 664 N. Michigan St., Chicago, 18 hole golf course, along shores Lake Springfield, **$100,000.** S. T. Anderson, City Hall, engr.

Indiana—RURAL DISTRIBUTION LINES —Jasper County Rural Electric Membership Corp., Rensselaer, 47 mi. rural distr. lines, sys. imprvs., Jasper Co., **$265,000.**

●**Iowa** — RURAL DISTRIBUTION LINES — Central Iowa Power Co-operative, Cedar Rapids, 30 mi. 115 kv. lines, 129 mi. kv. transmission lines, addnl. power unit, 1 substation etc., Linn Co. **$4,065,000.** Brown Eng. Co. K. P. Bldg., Des Moines, engr.

Iowa — RURAL DISTRIBUTION LINES — Harrison Co. Rural Electric Co-operative, Woodbine, rural distr. lines, Harrison Co. **$295,000.** Brown Eng. Co., K. P. Bldg., Des Moines, engr. CD 9/8/47.

Kentucky—RURAL DISTRIBUTION LINES —Fleming-Mason Rural Electric Co-operative Corp., Flemingsburg, sys. imprvs., etc., Fleming Co. **$860,000.** CD 6/5/47.

●**Kentucky**—RURAL DISTRIBUTION LINES —Warren Rural Electric Co-operative Corp., Bowling Green, 450 mi. rural distr. lines, sys. imprvs., Warren Co., **$1,345,000.**

●**Louisiana to Illinois**—NATURAL GAS LINE —Syndicate, c/o Alexander Crowell, Commercial National Bank Bldg., Shreveport, La., 1,000 mi. natural gas line, between New Orleans, La. and Chicago, Ill. **$300,000,000.**

Minnesota—RURAL DISTRIBUTION LINES —Minnesota Valley Co-operative, Light & Power Assn., Montevideo, 140 mi. rural distr. lines, sys, imprvs., Chippewa Co. **$330,000.**

Minnesota—RURAL DISTRIBUTION LINES —Nobles Co-operative Electric Co., Worthington, 157 mi. rural distr. lines, sys. imprvs., Nobles Co. **$340,000.**

●**Mississippi**—RURAL DISTRIBUTION LINES —Pearl Valley Electric Power Assn., Columbia, 223 mi. rural distr. lines, sys. imprvs., Marion Co., **$1,010,000.**

Mississippi — RURAL DISTRIBUTION LINES — Southwest Mississippi Electric Power Assn., Lorman, 313.5 mi. rural distr. lines, Copiah Co. **$313,000.** Bowman & Bowman, 516 E. Jefferson St., Greenwood, consult. engrs.

Mississippi—RURAL DISTRIBUTION LINES —Twin Co. Electric Power Assn., Hollandale, 269 mi. rural distr. lines, sys. imprvs., Washington Co., **$775,000.**

Missouri — RURAL DISTRIBUTION LINES — Atchison-Holt Electric Co-operative, Rockport, 310 mi. rural distr. lines, sys. imprvs., 15 mi. 33 kv. transmission lines, Atchison and Holt Counties, **$575,000.** Henningson Eng. Co., Standard Oil Bldg., Omaha, Neb., engrs.

Missouri — RURAL DISTRIBUTION LINES —Co-Mo. Electric Co-operative, Tipton, 267 mi. rural distr. lines, sys. imprvs., Cooper Co. **$625,000.**

Missouri — RURAL DISTRIBUTION LINES — West-Central Co-operative, Higginsville, 100 mi. rural distr. lines, sys. imprvs., two-way radio, Lafayette, Jackson, Johnson, Pettis and Cass Counties, **$220,000.** Frank Horton & Co., Lamar, engrs.

Montana — RURAL DISTRIBUTION LINES —McCone Co. Electric Co-operative, Circle, 60 mi. rural distr. lines, sys. imprvs., McCone Co. **$230,000.**

N. Y., New York — TOWER and COAL CONVEYOR BLDGS. — Consolidated Edison Co., 4 Irving Pl., Zone 3, tower and coal conveyor bldgs. at 14 St. and East River. **$176,000.** T. R. Galloway, c/o owner, engr.

●**North Dakota** — RURAL DISTRIBUTION LINES—Baker Electric Co-operative, Cando, 923 mi. rural distr. lines and sys. imprvs., Benson Co., **$1,525,000.**

●**North Dakota** — RURAL DISTRIBUTION LINES — Slope Electric Co-operative, New England, 705 mi. rural distr. lines and sys. imprvs., Slope Co., **$1,010,000.** CD 3/11.

Oklahoma—RURAL DISTRIBUTION LINES —Choctaw Electric Co-operative, Hugo, 241 mi. rural distr. lines, sys. imprvs., Choctaw Co. **$500,000;** 194.1 mi. rural distr. lines, Choctaw Co. **$194,000.** George C. Hengy & Co., 1008½ Texas Ave., Shreveport 23, La., consult. engrs. latter project. CD 9/27/48.

●**Oklahoma** — RURAL DISTRIBUTION LINES — East Central Oklahoma Electric Co-operative, Okmulgee, 677 mi. rural distr. line and sys. imprvs., Okmulgee Co. **$1,675,000.**

Oregon—RURAL DISTRIBUTION LINES—Wasco Electric Co-operative, The Dalles, sys. imprvs. and headquarters facilities, Wasco Co., **$216,000.**

South Carolina — RURAL DISTRIBUTION LINES — Marlboro Electric Co-operative, Bennettsville, 183 mi. rural distr. lines and sys. imprvs., Marlboro Co. **$490,000.**

South Dakota — RURAL DISTRIBUTION LINES—Cam-Wal Electric Co-operative, Inc., Selby, 401.4 mi. rural distr. lines, Walworth Co. **$401,000.** Banister Eng. Co., 1549 University Ave., St. Paul 4, Minn., consult. engr.

South Carolina — RURAL DISTRIBUTION LINES—Mid-Carolina Electric Co-operative, Lexington, 50 mi. rural distr. lines and sys. imprvs., Lexington Co., **$110,000.**

South Carolina — RURAL DISTRIBUTION LINES—Newberry Electric Co-operative, Newberry, 39 mi. rural distr. lines and sys. imprvs., Newberry Co., **$200,000.** CD 5/12/48.

●**South Dakota** — RURAL DISTRIBUTION LINES—F. E. M. Electric Assoc., Ipswich, 1,214 mi. rural distr. lines and sys. imprvs., Edmunds Co., **$1,995,000.** CD 3/4/48.

●**Tennessee**—RURAL DISTRIBUTION LINES —Plateau Electric Co-operative, Oneida, 469 mi. rural distr. lines and sys. imprvs., Scott Co., **$1,250,000.**

●**Texas** — TRANSMISSION LINE — Gulf States Utility Co., 362 Liberty St., Beaumont, 85 mi. 132,000 volt electric transmission line between Navasota and Dayton, Grimes Co. **$2,600,000.**

●**B. C., Vancouver** — COLISEUM — Pacific National Exhibition, Exhibition Park, plans by Sharp & Thompson, Berwick & Pratt, 626 W. Pender St., agriculture, sports coliseum. **$2,000,000-$3,000,000.** CD 12/4/47, under Public Bldgs.

Proposal Advetisements see pp. 55 to 58

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Notice is hereby given that sealed bids will be received at Casper, Wyoming, until 10 a.m., Mountain Standard Time, August 4, 1949, and then publicly opened for furnishing labor and equipment and performing all work for the relocation of Casper-Thermopolis 66-kilovolt transmission line, Transmission Division, Wyoming, Kendrick Project, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following office of the Bureau of Reclamation: I. J. Matthews, District Manager, 504 Con Roy Building, Casper, Wyoming. No charge to prospective bidders for copies of the specifications and drawings; to others $1.25 per copy, not returnable. (239)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Notice is hereby given that sealed bids will be received at Casper, Wyoming, until 10 a.m., Mountain Standard Time, August 9, 1949, and then publicly opened for furnishing and delivering the transformer transfer car for the New Casper Substation, Kendrick Project, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following office of the Bureau of Reclamation: I. J. Matthews, District Manager, 504 Conroy Building, Casper, Wyoming. No charge to prospective bidders for copies of the specifications and drawing; to others $1.25 per copy, not returnable. (241)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2725) will be received by Bureau of Reclamation, Denver, Colorado, August 5, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of the Flatiron-Longmont-Leyner and Leyner-Brighton 115-kv transmission lines, Colorado-Big Thompson Project, Colorado. The work is situated near Loveland, Longmont, and Brighton, Colorado. The lines consist of approximately 39 miles of 115-kv, three-phase, single-circuit, wood-pole, H-frame-type transmission lines with two overhead ground wires. Time allowed for completion will be 260 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner.

(240)

Public Roads Administration, Federal Works Agency, June 30, 1949. SEALED BIDS will be received at the office of the Division Engineer, Public Roads Administration, 1440 Columbia Pike, Arlington, Virginia, until 10:00 a.m. D.S.T., August 2, 1949, for the construction of West Virginia Forest Highway Project No. 94-A, (George Washington National Forest), Hardy County, West Virginia. Length—7.628 miles. The approximate quantities of the more important items are as follows: 24,880 Cu. Yd. Excavation; 16,300 Tons Crushed Gravel or Crushed Stone Base Course; 1,363 Lin. Ft. Corrugated Metal Pipe. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or certified check made payable to the Treasurer of the United States will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained at the address given above, or at Public Roads Administration, 410 State and City Office Building, Roanoke, Virginia. H. J. Spelman, Division Engineer.

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OFFICIAL PROPOSALS

Bids: August 4, 1949 (246)

Construction of Bath House, etc.

HURON-CLINTON METROPOLITAN AUTHORITY
BUILDINGS AT ST. CLAIR METROPOLITAN BEACH

Sealed bids will be received by the Huron-Clinton Metropolitan Authority, 1100 Cadillac Square Building, Detroit, 26, Michigan, at 2:00 p.m., E.S.T., on Thursday, August 4, 1949, for the construction of a Bathhouse, Cafeteria Building, Administration Building, Beach Toilets and First Aid Buildings, Canopies and Paving, at St. Clair Metropolitan Beach, Macomb County, Michigan, at which time they will be publicly opened and read. No bid will be accepted after the time set for opening.

Copies of the Plans, Bid Forms, Specifications and Contract Documents, as prepared by O'Dell, Hewlett and Luckenbach, Architects, may be obtained at the address given above, on or after July 11, 1949, upon the deposit of Twenty-Five Dollars ($25.00), which sum will be refunded when the plans and documents are returned in good condition. The Proposal shall be made on the Bid Form prepared by the Architect and Engineer.

Bids are to be submitted for the furnishing of all labor, material, and equipment, for the compelte structure, including all mechanical trades, on a lump sum basis.

Bids shall be accompanied by a Certified Check or Standard Bid Bond equivalent to five percent (5%) of the bid.

Bids are to be firm and cannot be withdrawn for at least thirty (30) days after time of opening.

The successful Bidder will be required to furnish satisfactory Bonds, to the full amount of the contract, and insurance coverage as provided in the Contract Documents.

The right is reserved by the Authority to reject any or all bids, and waive irregularities in any bid, in the interest of the Authority.

HURON-CLINTON METROPOLITAN AUTHORITY
George W. McCordic
Engineer-Director

Bids: July 29 (245)

Sewage Disposal

PHILADELPHIA, PENNA.
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING, SURVEYS AND ZONING

Sealed Proposals will be received at Room 903 City Hall Annex, until 12:00 o'clock noon, Daylight Saving Time, FRIDAY, JULY 29, 1949, and opened at that time in Room 1025 City Hall Annex, Philadelphia, Penna. for the

SEWAGE DISPOSAL PROJECT

SCHEDULE "A"—LOWER DELAWARE LOW LEVEL INTERCEPTING SEWER IN SWANSON STREET FROM MOORE STREET TO MORRIS STREET AND IN DELAWARE AVENUE FROM MORRIS STREET TO SWANSON STREET AND IN SWANSON STREET FROM DELAWARE AVENUE TO KENLIWORTH ST. CONTRACT NO. SD 105 SE.

The work consists of 3,685 feet of 10 feet diameter concrete sewer in tunnel, and 1,504 feet of 9' 6" diameter concrete sewer in tunnel, both in compressed air.

Proposal forms and specifications may be obtained in Room 1101 City Hall Annex. Blue prints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Co., 51 North 13th Street, Philadelphia 7, Penna.

No bid will be received unless bidder is qualified by the Director of Public Works. The questionnaire form with all questions fully answered must be filed with the Director of Public Works at least one week prior to the date of opening bids.

Each bid must be accompanied by security in form and amount as set forth in the proposal form.

THOMAS BUCKLEY, Director

Bids: August 1, 1949 (248

Sub-Grade Walls for Bus Terminal

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-4

Sealed proposals for construction of the sub-grade walls for the Port Authority Bus Terminal, between West 40th and West 41st Streets and 8th and 9th Avenues, New York City, will be received at the Office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Avenue, New York 11, N. Y., until 2:00 P. M. Monday, August 1, 1949, and thereafter in the Auditorium of the Authority at the same address until 2:30 P. M. on the same date, at which latter time and place said Proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer, and copies will be furnished upon deposit of $10.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman.
New York, July 14, 1949

(Continued on page 85)

Bids: August 26

NOTICE OF SALE

Railway Equipment

Sealed bids will be received by the State of Louisiana, Office of the Governor, Division of Administration, Purchasing Section, 201 Capitol Annex, Baton Rouge, Louisiana, at 10:00 a.m., August 26, 1949 for the sale of Railroad Equipment located at Louisiana State Penitentiary, Angola, Louisiana, and delivered F.O.B. Angola, Louisiana, or Bains, Louisiana. Bids will be received on the following:

1—Mogul type Locomotive #44, built by American Locomotive Co., weight on drives 47 tons, total weight including water tender and fuel oil tank approximately 44 tons.
1—Prarie type Locomotive #22, built by Baldwin Locomotive Co., weight on drives 45 tons, total weight including water tender and fuel oil tank approximately 35 tons.
57—Metal fittings for wood body cane cars, standard gauge, 4 pairs wheels, 342 tons.
31—Metal fittings and frame for steel body cane cars, standard gauge, 4 pairs wheels, 248 tons.
1180—Tons—60 pound rails
230—Tons—40 pound rails
292—Tons—70 pound rails
43—Tons—Spikes
66—Tons—Angle Bars
70—Tons—**Tie Plates**

Bidder to submit bid based on Owner delivering material onto railroad cars at Bains, Louisiana and an alternate bid if he desires to take delivery at Angola, Louisiana, the Owner to load material onto Buyer's trucks or onto barges at Tunica Landing or Angola, the Owner to deliver material onto barges.

Locomotives and cars will be taken apart into sizes that can be handled on trucks unless delivery is made by barge in which case the amount of dismantling will be such as is agreeable to Buyer and Seller. The quantities shown are approximate and scale weighing of material delivered will governor for payment.

A Bid Bond in the amount of 5% of the amount bid bust accompany each bid, which amount shall be retained by the vendor as a performance bond to secure the faithful performance of the contract to be entered into between the vendor and the successful bidder or bidders. After the awards have been made said amounts accompanying the bids of the unsuccessful bidders will be immediately returned to them and/or each of them.

These bids will be publicly opened and read at same hour and date specified above, in Room 201, Capitol Annex. No bids will be received after date and hour specified.

The owner reserves the right to reject any or all bids and to waive any informalities.

State of Louisiana
Office of the Governor
DIVISION OF ADMINISTRATION
J. H. Rester
Commissioner of Administration
By
D. H. Whittington
Purchasing Supervisor

"Opportunity" Advertising:
Think
"SEARCHLIGHT"
First

OFFICIAL PROPOSALS

(Continued from page 84)

Bids: August 12, 1949 (207)

Substructure and Approach Ramps

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY the Triborough Bridge and Tunnel Authority, at its office, Administration Building, Randall's Island, Manhattan, N. Y. 35, as follows:

Until 11 a.m., daylight saving time, on Friday, August 12, 1949 for the Substructures and Approach Ramps of the Pedestrian Bridge over the Harlem River connecting East 103rd Street with Wards Island, Borough of Manhattan, contract WI-1.

A more complete description of the work and full information for bidders is given on the drawings and in other contract papers.

Contract drawings and specifications may be seen at the office of O. H. Ammann, Consulting Engineer, Room 866, 76 Ninth Avenue, Manhattan, New York 11, N. Y.

Each bid must be accompanied by a deposit in the amount of Forty Thousand Dollars ($40,000).

Blank forms for proposals, information for bidders, contract, bond and specifications may be obtained at the office of O. H. Ammann Consulting Engineer, Room 866, 76 Ninth Avenue, Manhattan, New York 11, New York on or after July 5, 1949. Arrangements will be made whereby prospective bidders desiring sets of specifications and blueprints of the contract drawings for their own use may secure same, the cost thereof ($25.00 per set) to be paid by them, which will be refunded if said specifications and blueprints are returned in good order within 30 days after the award of the Contract.

Dated: July 1, 1949

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY,
George E. Spargo,
General Manager and Secretary

Bids: July 29, 1949 (242)

Construction of Grading, Draining, Etc.

PENNSYLVANIA TURNPIKE COMMISSION

Harrisburg, Pennsylvania

NOTICE TO BIDDERS

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 A.M. (Eastern Daylight Saving Time), the 29th day of July, 1949, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrisburg, Pennsylvania, and immediately publicly opened and read aloud, for the following contract and/or contracts:

For the construction of grading, drainage, structures and paving of Turnpike Section 25C, part of the Philadelphia Extension in East Cocalico and Brecknock Townships, Lancaster County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point 800 feet east of Legislative Route 36046 in East Cocalico Township at Turnpike Station 1048+74 (Lancaster County), thence in an Easterly direction 19,975 feet to a point approximately 1,350 feet east of Legislative Route 36012 in Brecknock Township at Turnpike Station 1248+50 (Lancaster County), a distance of approximately 3.78 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation, 542,000 cubic yards; Class II Excavation, 21,000 cubic yards; Reinforced Concrete Pavement, 127,000 square yards; Class A Concrete, 1,300 cubic yards; Class B Concrete, 5,200 cubic yards; Plain Steel Bars, 461,000 pounds; Fabricated Structural Steel, 1,000,000 pounds.

For the construction of grading, drainage, structures and paving of Turnpike Section 26A, part of the Philadelphia Extension in Brecknock Township, Lancaster County, Commonwealth of Pennsylvania. This section being situated as follows:

Beginning at a point approximately 190 feet east of Legislative Route 36049 in Brecknock Township at Turnpike Station 1248+50 (Lancaster County), thence in an Easterly direction 25,072 feet to a point approximately 1,082 feet east of Township Road 967 in Brecknock Township at Turnpike Station 1499+22.22 (Lancaster County), a distance of approximately 4.75 miles.

The approximate quantities of the principal items are as follows:

Class I Excavation, 760,000 cubic yards; Class II Excavation, 26,000 cubic yards; Reinforced Concrete Pavement, 133,300 square yards; Class A Concrete, 1,700 cubic yards; Class B Concrete, 8,000 cubic yards; Plain Steel Bars, 759,000 pounds; Fabricated Structural Steel, 517,000 pounds.

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania, not earlier than July 15, 1949 and not later than July 18, 1949. Copies of cross-sections may be purchased from the Pennsylvania Turnpike Commission for the sum of Fifty Dollars ($50.00) per set.

Specifications and contract documents for each section, exclusive of cross-sections, may be obtained from the Commission upon deposit of Ten Dollars ($10.00) for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans, contract documents and cross-sections returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission. Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for drawings, specifications and cross-sections.

The Pennsylvania Turnpike Commission reserves the right to award each section as a separate contract or as a combined contract.

The character and amount of bid security to be furnished by bidder is stated in the Instructions to Bidders.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania
July 1, 1949.

Bids: July 19, 1949 (229)

East Delaware Tunnel

CONTRACTS 405, 406, 407 AND 408

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, July 19, 1949, for the following four contracts for the construction of the East Delaware tunnel of the Delaware aqueduct, comprising about 25 miles of concrete lined pressure tunnel, circular in section, and 11 feet 4 inches in finished diameter for practically its entire length, the intake works consisting of an intake channel and intake chamber with superstructure of brick with granite trim, and Shafts 1 and 2 which will be circular in section and lined with concrete, all as set forth in the specifications: CONTRACT 405, for the construction of about 20,200 linear feet of tunnel, including the intake structures, located in the Town of Colchester, Delaware county, New York: CONTRACT 406, for the construction of about 43,560 linear feet of tunnel, including Shaft 1 approximately 605 feet deep and 14 feet in diameter except for a 150-foot enlarged section 20 feet in diameter, located in the Towns of Colchester, Delaware county and Rockland, Sullivan county, New York: CONTRACT 407, for the construction of about 40,350 linear feet of tunnel, including Shaft 2 approximately 965 feet deep with a diameter of 14 feet, located in the Towns of Rockland and Neversink, Sullivan county, New York, and CONTRACT 408, for the construction of approximately 27,750 feet of tunnel from the portal at the outlet end, including about 520 feet of 9-foot 6-inch tunnel at the portal, located in the Town of Neversink, Sullivan county, New York.

A bidder on two or more of the four contracts may, if he so desires, specify in the bid form a percentage reduction from the total cost of the particular contract for which he is then bidding, which he will agee to make if he is awarded that contract together with one or more of the other three contracts.

Pamphlets of the four contracts containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of $5.00 in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: August 12, 1949 (228)

Superstructure

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY the Triborough Bridge and Tunnel Authority, at its office, Administration Building, Randall's Island, Manhattan, N. Y. 25, as follows:

Until 2 p. m., daylight saving time, on
FRIDAY, AUGUST 12, 1949

For the Superstructure of the Pedestrian Bridge over the Harlem River connecting East 103rd Street with Wards Island, Borough of Manhattan, contract WI-2.

A more complete description of the work and full information for bidders is given on the drawings and in other contract papers which may be seen at the office of O. H. Ammann, Consulting Engineer, Room 866, 76 Ninth Avenue, Manhattan, New York 11, N. Y.

Each bid must be accompanied by a deposit in the amount of Fifty Thousand Dollars ($50,000).

Blank forms for proposals, information for bidders, contract, bond and specifications may be obtained at the office of O. H. Ammann, Consulting Engineer, Room 866, 76 Ninth Avenue, Manhattan, New York 11, N. Y. on or after July 5, 1949. Arrangements will be made whereby prospective bidders desiring sets of specifications and blueprints of the contract drawings for their own use may secure same, the cost thereof ($25.00 per set) to be paid by them, which will be refunded if said specifications and blueprints are returned in good order within 30 days after the award of the Contract.

Dated: July 1, 1949

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY,
George E. Spargo, General Manager and Secretary

Bids: July 26, 1949 (238)

Construction of a Sanitary Sewer, Etc.

Notice is hereby given that sealed bids will be received July 26, 1949, at 8 p. m., Daylight Saving Time, by the Commissioners of the City of Bordentown, New Jersey, at the Commission Chamber on Crosswicks Street for the construction of an 8" sanitary sewer main and appurtenances.

The approximate items are:

1,890 feet of 8" vitrified clay pipe, depth of burial from 5 to 15 feet;
8 manholes, 5 to 15 feet deep;
Necessary sewer laterals.

Plans and specifications for this project are available at the office of J. Horace Eaton, City Engineer, 513 Farnsworth Avenue, Bordentown, New Jersey upon payment of Twenty-five dollars which will be refunded to those contractors bidding the project.

Bids shall be submitted on standard proposal forms and shall be enclosed in sealed envelopes and addressed to the Commissioners of the City of Bordentown, New Jersey.

Award of contract will be made, if at all, to the lowest responsible bidder on the proposed work.

Each bid shall be accompanied by a certified check made payable to John R. Dougherty, City Clerk, for not less than 10% of the amount of the bid.

JOHN R. DOUGHERTY
City Clerk

OFFICIAL PROPOSAL

RATE: $1.00 per line (or fraction) per insertion.

CLOSING DATE: 3:00 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

(Additional Proposal advertising on page 88)

SEARCHLIGHT SECTION

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:

(Not available for equipment advertising)

$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.

INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.00 a line an insertion.

INFORMATION.

BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page.

E.N.R.

NEW ADVERTISEMENTS received by July 20th appear in July 28th issue subject to limitation of space available

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WANTED

STRUCTURAL ENGINEERS

Qualified to prepare structural designs of buildings, foundations, and other structures. Requires knowledge of industrial plant construction, indeterminate stress, rigid framing, and good structural design principles. College education helpful but not mandatory. Excellent working conditions with steady employment. Write giving full particulars concerning education, experience, age, and when available.

P-9300, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

PIPING SUPERINTENDENT

Construction firm has opening in California for an experienced Piping Supt. Minimum 5 years experience on lump sum contracts. Furnished experience record and photo.

P-8978, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

WANTED

BRIDGE DESIGNERS

Minimum 5 years bridge design experience desired. Recent graduates considered. Long term to permanent employment. Vocation plan and insurance. Send complete resume stating experience, education, salary requirements and date available.

Box 5073, Pittsburgh (6), Pa.

SALES REPRESENTATIVE CONCRETE ENGINEER OR TECHNICIAN

Permanent position for man with practical experience in concrete design and operation of ready mix concrete plants. Sales Representative—Engineering position with opportunity for advancement. Salary and Travel. Must be willing to travel extensively. Write fully giving details your experience, salary desired, snapshot, etc. to

RW-9391, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

BUILDING CONSTRUCTION ESTIMATOR

Wanted by Construction Company in Boston, Mass. Must have experience in taking off quantities on all types of buildings, and the ability to prepare surveys for concrete, masonry, carpentry, excavation, utilities, etc. Good salary to qualified person. Apply by letter, stating experience, references, and date available. All replies will be held strictly confidential.

P-9380, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

WANTED—ENGINEERS, Architects, Draftsmen experienced in the design of sewers, sewage treatment plants, water treatment plants and industrial buildings. Also engineers to supervise construction. State qualifications, experience. Salary requirements and date available. P-1155, Engineering News-Record.

CIVIL ENGINEER. Young, Registered, experienced—for position as City Engineer. Central Missouri. Salary $300-$400 per month. P-9271, Engineering News-Record.

WANTED: THOROUGHLY experienced estimator for building contractor specializing in public works. Stanley W. Newman Co., Inc., Mobile, Ala.

WANTED: CITY Chemist and Bacteriologist qualified to take care of a large water supply system. State age, qualifications, experience, salary expected and date available. Write to City of Bethlehem, Pennsylvania, c/o Bertram L. Nagle, City Clerk, City Hall, Bethlehem, Pennsylvania.

FOR CENTRAL & Northern New York State: Bricklayer Foreman capable of handling brick and stone work on large project, ready to start in four to six weeks. Answer in own handwriting stating age, background, character and experience, references, and following, if any. P-9188, Engineering News-Record.

FIRST CLASS structural detailer-checker. Location East. Top rate. State age, availability, experience in first letter. P-9223, Engineering News-Record.

WANTED: MAN with knowledge of Gunite Cement Machine operation. One who can also estimate as well as apply work. Have good proposition for the right party. Salary and a chance to share in the profits. Norwalk Conn., 6-1651. Evenings Norwalk 6-9870. Mr. Binsse. Will consider selling machine also.

SALES ENGINEER-Paint Chemist wanted by eastern manufacturer of nationally distributed paints. In addition to basic training in paint chemistry, applicant must have had practical experience in solving industrial corrosion problems in the field with plastic resin coatings. Position requires traveling 6 to 8 months per year. State salary requirements. Applications will be treated in strict confidence. P-9366, Engineering News-Record.

DRAFTSMAN: STRUCTURAL steel fabricator in Baltimore area desires services of thoroughly experienced man for detailing and checking. Excellent position for properly qualified man. Please give experience in detail and salary expected. P-9383, Engineering News-Record.

WANTED: A young engineer truly capable of calculating the hydraulics of water purification plants and sewage treatment plants. In reply give details regarding age, training and experience, salary requirements, and three references. Permanent position, good working conditions, located in Chicago. P-9398, Engineering News-Record.

POSITIONS VACANT

CONSTRUCTION ENGINEER - estimator wanted by established General Contractor, New York area. Permanent, responsible position open to graduate Civil Engineer, capable handling projects inception to completion; fully familiar with estimating, preparation of bids and job co-ordination. Applicant must be under 42 years of age. Only experienced and qualified apply. Submit detailed qualifications, including education, references, date available and salary desired. Replies confidential. P-9399, Engineering News-Record.

WANTED: SUPERINTENDENT of Construction. Experienced in subway, tunnel and heavy underpinning work. State qualifications, experience, salary requirements and date available. P-9389, Engineering News-Record.

WANTED THOROUGHLY experienced estimator and engineer by General Contractor engaging in heavy construction in New York City and adjacent territory. Give complete experience record in first letter. P-9390, Engineering News-Record.

WANTED ENGINEER with wide experience in sales, estimating, and operations on Rigging, Machinery Moving, Erecting, Dismantling, Etc. Large old estalished firm located in the East. Good salary and unlimited opportunity for a man who feels he is now, or can develop into a leader in the Rigging and Trucking Industry. P-9409, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT — 27 years experience in complete charge of projects consisting of: chemical plants; slip-form concrete structures; material handling and process equipment installations; grain elevators and dryers; cement plants. Under fifty years of age. Will go any location. Further details on interview. PW-8914, Engineering News-Record.

CONSTRUCTION SUPERVISOR or Superintendent desires assignment in Latin America. 17 years experience in construction. 2½ years on large Latin American building project. Fluent Spanish. Accustomed to responsibility. Will work on salary or fee basis. Available immediately. PW-9403, Engineering News-Record.

(Continued on page 87)

When Answering

BOX NUMBERS...

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

POSITIONS WANTED

(Continued from page 86)

CIVIL AND Mech. Engineer, 24, single, two years construction experience, two years lecturing in engineering. Desires work anywhere U. S. on heavy construction projects preferably dams. Keen on organizing. PW-9381, Engineering News-Record.

CIVIL ENGINEER Ph.D. aged 32, married, 2 years structural design, 2 years highway and airport design experience. Desires teaching research design or construction position. PW-9372, Engineering News-Record.

ENGINEER REGISTERED ten years experience heavy construction as estimator, superintendent, manager desires connection domestic or overseas. PW-9410, Engineering News-Record.

ENGINEER (GRADUATE electrical-mechanical) 30 years in all branches, field and office. Consultant, supervisor, liaison on large construction projects handling utilities and building construction of communities efficiently. Also survey and reports on Foreign Nations power and industrial exploitation. Anywhere home or abroad. Physically perfect. Age 54 years, Min. 900 and up in accordance with location. Highest references possible. Present contract expires September. J. Slingerland, Pleasantville, New York. Phone 2393.

SUPERINTENDENT WATER works or Sewage Plant. Extensive experience in operation and maintenance of plants, distribution systems and collection systems. Especially successful in chemical treatments, filtration improvements, improvement of distribution systems, chemical, physical and bacteriological examinations of all types of waters. Education, B.S. in Chemical Engineering with 12 years of active experience with plants of all sizes. Interested only in positions where water works or sewage properties are to be operated and maintained properly. PW-9205, Engineering News-Record.

GENERAL OR Job Superintendent. 20 years experience in supervision, estimating, purchasing, and expediting, on all types of Federal, Industrial, Commercial and Institutional Construction. Available July 8th. PW-9313, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT and engineer, 17 years experience as superintendent in charge of public, commercial, industrial, bridges & road projects, graduate engineer, excellent record, desires location in south or mid south, address PW-9336, Engineering News-Record.

FOR SALE

One Berger Transit

7-¾" telescope, 4-¾" horizontal limb, ½ circle on vertical limb complete with compass and collapsible tripod. Davy Engineering Co., 502 Main Street, La Crosse, Wisconsin.

PATENT ATTORNEY

Patent Practice

before U. S. Patent Office, Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster, Allwine & Rommell, Registered Patent Attorneys, Suite 454, 815-15th Street, N.W., Washington 5, D. C.

BUSINESS OPPORTUNITY

We will financially qualify Midwestern asphalt company which is equipped and wishes to expand business by co-partnership arrangement, in future contracts. We are capable of prompt decisions with good banking references.
Correspondence confidential.

BO-9153, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED

WANTED

50M BM Used 4" and 5" Timbers in various lengths.

HEYDT-MUGLER COMPANY, INC.
Longfellow & Viele Aves., New York 59
DA 9-2300

EQUIPMENT BARGAINS FOR QUICK SALE

- **8—EUCLID 25FDT Bottom Dump Wagons**
- **1—EUCLID 5BV Loader**
  (Will also consider long term rental on above)
- **4—EUCLID KGT Bottom Dump Wagons**
- **1—1948 UNIT 1020, ¾ yard combination Shovel & Backhoe (new machine guarantee)**
- **1—1947 BYERS 71 ⅝ cu. yd. Shovel & Hoe**
- **1—1948 INSLEY K12 ½ cu. yd. Shovel & Hoe**
- **1—1949 LORAIN TL-20 Hoe**
- **1—MARION 93 M Shovel New Aug. 1947**
- **1—CEMCO 24" x 40' Portable Conveyor, new**
- **1—WILLIAMS ¾ yd. MF Multiple Rope Clamshell Bucket**
- **1—WILLIAMS 1 yd. MF Multiple Rope Clamshell Bucket**
- **2—OWEN Type K 1¼ yd. clamshell buckets (slightly used)**
- **2—¾ yd. PETTIBONE-MULLIKEN Shovel Dippers with padlock, new**
- **5—⅜ yd. QUICKWAY Dragline Buckets, new**
- **1—SULLIVAN 105 Air Compressor, new**
- **1—SULLIVAN 105 Air Compressor mounted on 1935 Ford Truck**
- **1—CMC 3½S Concrete Mixer, new**
- **1—CMC Radial Saw, new**

WRITE, WIRE OR PHONE:

T. E. POTTS EQUIPMENT CO., INC.

2260 Sheridan Drive *Phone: Delaware 2200* Buffalo 17, N. Y.

FOR SALE AT REDUCED PRICES!
Former Government
SURPLUS & SALVAGE LUMBER
WELL SEASONED, SOUND MATERIAL
Will be re-manufactured to your specifications.

HILLCREST LUMBER CO.
1036 Grand St. Brooklyn, N. Y.
EVergreen 7-2121

BACKHOE

for P&H 255A Shovel
Must be good shape, low price.

A. G. SHERWOOD CONSTRUCTION CO.
Independence, Kansas
Telephone 560

FOR RENT OR SALE

LORAIN MODEL 79

1½ cy. Shovel & Crane, Caterpillar, Diesel completely rebuilt, equal to new machine.

BENDIX MACHINERY CO., INC.
401 Broadway, New York 13. Tel: Canal 6-5693

1—Northwest model 15 shovel complete in excellent condition $4950.00
1—Jaeger model CS-20 Concrete Spreader new $5000.00

THE LORENZ EQUIPMENT CO.
547 West Rich Street Columbus 8, Ohio

FOR RENT
New and almost new
Manitowoc Speedcranes

60 ton—2½ cu. yd. capacity Combination cranes, dragline and clamshells, caterpillar mounted—diesel powered. Reply

FR-8967, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

RENT

with purchase option

T-9 with Trackson Swing Crane. Government surplus. Cleaned and painted. Used but little. $2750.00.
BUCYRUS-ERIE 22-B. ¾ cu. yd. Shovel. New. $13,000.00.
KOEHRING 1 cu. yd. Concrete Mixing plant, complete with batchers, bin, elevator, gasoline power. A 1. $3000.00.
PARSONS #310. Ditcher. D8800 Cat. Diesel. 30" x 15 ft. Can be extended. New 1948. Used A 1. $13,500.00.
CAT. RD-6 with Cardwell Sideboom and Dozer. Real good. Ready go on job. $2600.00.
GENERAL #40. Dragline. New 1942. Used little. A 1. 45 ft. boom. Weight 46,000 lb. $6000.00.
EAGLE 20" x 36" RB. Jaw Crusher with Feeder. Long jaws. Guaranteed good as new. $6000.00.

Wenzel Machinery Rental & Sales Co.
2136 Jefferson St. Kansas City, Mo.

FOR RENT ONLY

3 HD19 A.C. Tractors with 24 cu yd Gar Wood Scrapers (push block on one tractor). 1 HD19 Bull dozer—Baker Cable Blade & Push Block. Less than 1000 hrs. time on each.
Reasonable Rental on complete fleet

TEX ARNOLD
Philipsburg, Penna.

TO HELP YOU . . .

find equipment you need

"Searchlight" Advertising

'CONTE BARGAINS'

2—Model C-104 LaPlant-Choate 30-yd Scrapers, each . . $2500.

1—Model 201 Galion Grader, with cab & lights . . . . $4500.

1—Allis-Chalmers HD14 Angledozer . . . . $4500.

1—International ID-6, rubber tired Tractor & Front Rotary Broom . . . . $2000.

Offered subject to prior sale, f.o.b. our yards, Pittsburgh, Pa.

CONTE EQUIPMENT CORPORATION
Brushton Ave at Thomas Blvd.
Pittsburgh, Pa. PEnhurst 6400

FOR SALE

BUCKEYE DRAG AND HOE COMBINATION

2 YRS. OLD—USED 8 MONTHS LIKE NEW—INCLUDES 30" HOE DIPPER

$9000.00

RAY WELCH
Allen Park, Mich.
15712 Cleveland—WA 8-1858

FOR SALE

1 Model 80-D Northwest Shovel

Equipped with Murphy Diesel Engine, lighting plant and wide cats, operated approximately 1,400 hours, purchased new August 1948, Serial No. 12878-9067B, price $36,000.

Model 6 Northwest Shovel

Equipped with Murphy Diesel Engine, wide cats and lighting plant, Serial No. 12766-6934B, purchased new March 1948, price $26,000.

Both machines located near Altoona, Pa., offered subject to prior sale. **Highway Contractors, Inc., P. O. Box 420, Norfolk, Va. Telephone Norfolk 21807.**

1 Brand New Model P&H 1055-LC Dragline

Equipped with planetary gears for highlift shovel front, wide cats and lighting plant, price $75,000. Subject to prior sale. Located near Coupon, Pa. **Cavalier Coal Co., P. O. Box 420, Norfolk, Va. Telephone Norfolk 21807.**

RENT OR SALE—SHOP REBUILT

Lorain 82 Diesel 2 cy Shovel, unused
Lorain 30 crawler ½ cy shovel, backhoe, crane
Bay City 17 to. Truckcrane, ten wheels, like new
Lorain 15 to. MOTO Crane, ten wheels, excellent
Insley "K" 7 to. Truckcrane, rebuilt
Caterpillar D-7 hydr. & cable bulldozers, rebuilt
International TD18 hydr. & cable bulldozers, 1948

BENDIX MACHINERY CO., INC.
401 Broadway, New York 13 Tel: Canal 6-5693

FOR SALE

BROWNING TRUCK CRANES

Two—New 1947, T-15's Sectional Booms up to 100 feet. Tandon drive. Original cost $21,000.00. Used about 8 months on steel erection. Will consider lease.

FS-9325, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

FOR SALE

ATTRACTIVELY PRICED

D7 Caterpillar with 30' Boom & ½ yd. Bucket
#88 & 88E Griffin Wellpoint Pumps
TS Hendrix 1½ yd. Drag Bucket
21" Canedy Otto Floor Drill
#8 Wells Band Saw
40 to 333 KVA Transformers
Oxygen & Acetylene Gauges
Twinweld Hose
4 HP Gas. Concrete Vibrator
Elec. Welders
Oxygen Manifold
Pedestal & Bench Grinders
Toledo Std. Power Drive
Unit Heaters
Snatch & Tackle Blocks
Air Tools
Toledo Hi-Speed Threading Machines
B&D Elec. Hammers

The M. W. KELLOGG CO., *Agent*
East Chicago, Ind. Phone 2914

SHOVEL FRONTS

Insley Model K, ½ yard
Bay City Model 30 ½ yard

Both attachments practically new. Priced to sell.

EARLE EQUIPMENT COMPANY
3648 So. Division Grand Rapids 8, Mich.
Phone 5-5824

1—Bay City shovel, with shovel and backhoe attachments, one-half yard, new 1941, ex. cond. $6,800.00
1—Bucyrus-Erie, 10 B, with shovel and backhoe att., new in 1940, ex. cond. $6,800.00

G. H. LITTS
E. Stroudsburg, Pa.
PHONE STROUDSBURG 3233

OFFICIAL PROPOSALS

(Continued from page 85)

Bids: July 28, 1949 (244)

State Road Work

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 151, SECTION 1A

Construction of Route 151, Section 1A, Approaches to Memorial Avenue Overpass at Route 25, from Federal Street to Memorial Avenue, Grading and Drainage, in the City of Camden, Camden County, Federal Project No. U-69(14).

Estimated:
1,000 cu. yds. Roadway Excavation—Earth
114,800 cu. yds. Borrow Excavation
8,000 cu. yds. Stand Blanket
52,600 lin. ft. Vertical Sand Drains

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Thursday, July 28, 1949 at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by Sections 2, 3 and 4, P. L. 521, 78th Congress, and is to be performed in accordance with the special provisions and requirements of the Federal Works Agency, Public Roads Administration, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 538 Broadway, Camden, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

Bids: July 26 (243)

Sewer Construction

MANSLICK AVENUE MAIN SEWER
CONTRACT NO. 68-A

Sealed Bids will be received by the Louisville and Jefferson County Metropolitan Sewer District at its office located at 414 West Jefferson Street, Louisville Kentucky, until 12 o'clock noon, Tuesday, July 26, 1949, for the construction of the Manslick Avenue Main Sewer, Contract No. 68-A.

The Contract will provide for the installation of a 78 inch precast reinforced concrete sewer (78" pipe to be furnished by the District), approximate length 3000 feet, average cut twenty (20) feet, and necessary appurtenant structures.

Plans, Specifications and Information for Bidders will be furnished to prospective bidders upon deposit of $50.00. This deposit will be refunded upon the return of Plans and Specifications after the Contract is awarded.

Each bid must be accompanied by a certified check drawn on a Louisville or New York Bank payable to the District in the amount of $25,000.

The right is reserved to reject any or all bids or waive any informality in any bid and to accept any proposal considered by the District to be on the whole, the best

NORVIN E. GREEN
Chairman of the Board

MORRIS FORMAN
Chief Engineer

CONTRACTORS Watch this Section for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

Caterpillar Diesel Engines

Model D-13,000 and D-8800

Complete - Very few hours

JULIUS HEBENSTREIT, INC.
56-15 58th St., Maspeth, L. I., N. Y.
Tel. Davenport 6-1461
Cable Address: Habenjul New York

FOR SALE

New P & H 1055 LC Hi lift front and bucket never used.

Marlow Centrifugal pump—8 ft. Diesel Engine—used 90 hours.

FOR SALE or FOR RENT

4 H D 19C tractors 3 with 24 yd. Garwood scrapers, one with pusher and bulldozer blades—new this year.

W. R. SHIRLEY
239 Fourth Ave. Pittsburgh 22, Pa.

FOR SALE

SUPER "C" TOURNAPULLS

Three extra good ones with Cummings Motors. One new and one rebuilt motors by Cummings. These machines are ready to work.

FRANK SHEETS
2729 McGee Kansas City, Missouri

FOR SALE

41B Bucyrus Erie Steam Crane
#5 Northwest Crane

Both recently overhauled and in excellent condition.

EDWARD ACKER CORPORATION
Port Jefferson, N. Y. Phones 1070-1071

BACKHOE

1—Lorain-41 Backhoe, 19′ goose-neck boom, 40 inch Bucket, Precision Boom Hoist & tagline, also shovel equip. on turntable, new late 1947, like new.

GREY STEEL PRODUCTS CO.
74 Central Ave., Glen Rock, N. J.
Tel. Ridgewood 6-2275

New Guaranteed . . . 60 TON

HYDRAULIC JACKS

Navy Surplus
ILLUSTRATED CATALOG **60% off**

BERKELEY DISTRIBUTORS INC.
16 JOHNSON AVE HACKENSACK N J

1—Model "C" Tournapul w/L.P. Scraper, Good
1—LeTourneau, W-210 Dump Wagon, New
1—D-7 Tractor, M-Series, w/dozer, Good
1—D-4 Tractor, w/dozer, new 1946, Very Good
1—A.C. HD-14-C Tractor, w/L.P. 12 yd. scraper, Excellent
1—A.C. Model "L" Tractor, w/Baker dozer, Good
1—Galion #116 Grader, 400 hrs., Like New
1—Model #406 Buckeye Trencher, New Condition

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WE MADE A MISTAKE . . . WE BOUGHT TOO MANY

These engines are brand new . . . never used . . .

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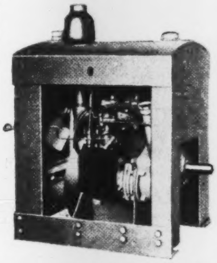


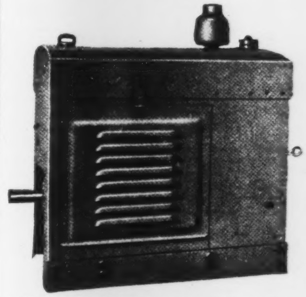
Specifications:

Engine only, 2 cylinder 2⅞" x 3½"
Gasoline Carburetor
Air Maze Oil Bath
Magneto
Fan
Radiator
Metal Housing
Gasoline Tank
Muffler
No. 5 Power Takeoff —Stub Shaft
Weight 385 lbs.

$185.00
IN LOTS OF 10
$195.00 for single units
FOB Chicago

~~24~~ 15 units in stock

MODEL D-91 • 15 HP • 4 CYL. • 1200 R.P.M.



Specifications:

Engine only, 4 cylinder 2⅞" x 3½"
Gasoline Carburetor
Air Maze Oil Bath
Magneto
Fan
Radiator
Metal Housing
Gasoline Tank
Muffler
No. 5 Power Takeoff —Stub Shaft
Weight 480 lbs.

$240.00 each
IN LOTS OF 10
$250.00 for single unit
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~~56~~ 35 units in stock

Seeley 3-0303

THOMAS HOIST CO.

20 South Hoyne Avenue Chicago 12, Illinois

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4—Used Super "C" Tournapulls. Excellent Condition.
1—Used Bucyrus-Erie Model 22-B, Crane-Dragline.
1—Used Link-Belt Model LS-85, Crane-Dragline.
1—Used Chicago Pneumatic 315-cubic foot Portable Air Compressor.

Used Motor Graders, all sizes and makes.

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1809-11 Cuming St. Omaha 2, Nebraska

1—Model R4 Caterpillar bulldozer with tilt-dozer blade excellent condition.
1—Ingersoll-Rand air compressor, two stage, 105CFM Model K105 mounted 4 wheel pneu. Practically new condition. 200 ft. new hose. Pavement breaker. Clay digger.
1—Koehring 7 cu. ft. mounted 4 steel wheels 2 cy. gas engine.
1—New Barco portable paving breaker. Model M6 equipped with tools.
1—3 ton Yale chain hoist new condition.

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10"	42#, 49#, 54#, 57#	24/65'
12"	53#, 65#	36/50'
14"	73#, 87#, 89#, 95#	28/60'
21"	112#, 132#	40/60'
24"	100#	30/60'
27"	94#	55'
30"	116#	35'
36"	160#, 170#, 182#, 194#, 260#, 300#	35/80'

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Sales Office 563 E. Tremont Ave. New York 57, N. Y.
AStoria 8-8023—8-8096 CYpress 9-5440-1

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3—Koehring Dumpsters Serial Numbers D-2577, D-2578 and D-2579.

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1600 HP General Motors Engines, 720 RPM.

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New Jaeger "H" Finisher 10'—14'
Slightly Used Jaeger "H" Finisher 10'—14'
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Wellpoint, Jetting Pumps, Header Pipe

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FOR SALE

1—¾ yard Strayer portable concrete mixing plant.
1—102 ton three compartment Hetzel concrete aggregate bins complete with scales.
1—90 foot boom with goose neck for Osgood Victor type shovel.
1—4" Hart horizontal drill.
1—Rex No. 105 Mixer.
1—Jaeger one bag mixer.
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1—N. W. Shovel, 1½ c.y.-new April 1946
1—P & H Dragline, 1½ c.y., new June 1948
1—N. W. Shovel, ¾ c.y. Diesel, Backhoe—40' Crane, Dragline, new Aug. 1948
1—Allis Chalmers Tractor Model HD19H, new May 1948
5—D W 10's—used 2500 hours
1—Caterpillar Auto Patrol #12—9K4626
1—Caterpillar D8 Angledozer #8R8933
1—Caterpillar D7 Bulldozer 4T5988

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SURPLUS BARGAINS

1—15 KW International Diesel Generator 120-240 v 60c radiator, instruments like new $1600
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Large lot of pumps, exhaust fans, DC Motors, switchboards, etc. We have equipment off over 35 LCIS LSMS LSTS

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FS-9324, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

TOURNAPULLS

3—1946 Super C with 12-yd Model LP Scrapers

FOR SALE
immediate delivery

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BOX 1678 ALBANY, N. Y.
5-5255

FOR SALE

1—Euclid Loader Model BV5, Serial 5BV34 New May 1947—used on one job.
7—Terra Cobra Scrapers, 150-HP Cummins engines. These machines new 1946-1947. Less than one year work. Latest Improvements including cabs, 12-c.f. air compressors and 24-V generators, drive chains enclosed. All overhauled and appearance like new. Will sell in lot or separately.

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Terms can be arranged
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Euclid Bottom Dump Hauling Unit, 23 Yd. Capacity, Mod. 71M, Serial No. 2360
Five DW-10 Hauling Wagons, Caterpillar, Serial Nos. V199-V156-1V65-1V77-1V88
Three Tournapulls, Model Super C, Serial Nos. C3T-4846-CIH-C3T-5309-CIH-C3T-4842-CIH
One Link Belt, ¾ Crane-Shovel-Backhoe, Serial No. IF937, Model 75
One Finishing Machine, Jaeger 25 Ft. Serial No. 42x056
One Concrete Spreader, Jaeger, 25 Ft. Serial No. 47x802
One Flynn Sub-Grader, Serial No. 5
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One Cement Plant, Madsen, 350 Bbls. Serial No. PF 124.

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1055LC P and H Dragline or Crane

New Oct. 1947, Used 1 shift part time. Because of unsettled local conditions. Still in new condition. Sacrifice Price.

For immediate Sale
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Philipsburg, Penna.

EXCESS EQUIPMENT For Sale

SHOVELS

Two Marion 93M Shovels, 26 ft. booms, 20 ft. handles, 2½ yd. dippers. Cat D17000 Diesel Engines, Serial No's. 8780 and 8782. New Summer of 1948, used about three months. Located New Milford, Pa.

Marion 7200 Walking Dragline, Serial 8794, 135 ft. boom, 5 c.y. Medium Weight Bucket, also has new 6-yard Hendrix Bucket. Purchased new in June 1948, never used. Located Havana, Illinois.

TRACTORS

The following D8 Caterpillar Tractors 1H Series:—
One with Bulldozer and P.C.U. located Bristol, Pa.
One with P.C.U. located Woodbridge, New Jersey.
Two with P.C.U. located Minneapolis, Minn.
Two with P.C.U. located Royersford, Penn.
One with P.C.U. and Bulldozer, located Minneapolis, Minn.
Three with Bulldozer and P.C.U. located Johnstown, Penna.
One with P.C.U. located Harrisburg, Illinois.

COMPRESSORS

One Chicago-Pneumatic 105 c.f. Ser. #38605 Hercules Engine. Located Johnstown, Penna.
One Worthington 315 c.f. Ser. #72583 International Diesel Engine. Located Minneapolis, Minnesota.
One Worthington 160 c.f. Ser. #72422 Gasoline Engine. Located Harrisburg, Illinois.
One Sullivan 105 c.f. Ser. No. 43083 Gas Engine. Located Harrisburg, Illinois.
One Gardner-Denver 365 c.f. Ser. #95410 Diesel Engine. Located Nedrow, N. Y.
One I-R 500 c.y. Ser. #40T8653 Hesselman Oil Engine. Located Nedrow, N. Y.
One Gardner-Denver (105 c.f. gas engine) Compressor. Located Johnstown, Penna.
One Worthington (160 c.f. gas engine) Compressor. Located Johnstown, Pa.

PATROLS

One #112 Caterpillar Patrol Ser. 2M33. Located Johnstown, Penna.
One #12 Caterpillar Patrol Ser. #9K407. Located Minneapolis, Minnesota.

S. J. GROVES & SON CO.
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New 1947. T 90—Sectional Boom up to 122 ft—Back Hoe with High Gantry and Extra Counter Weight—Clam Shell and 3,000 LB. Vulcan Drop Hammer with Leads. Used about six months.

FS-7325, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

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103 pcs. 20 ft. Inland 127—Okla.
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1,000 ft.	10¾"	O.D.	32.75#	Lapweld Casing
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70,000 ft.	7"	O.D.	17#	Lapweld Casing
35,000 ft.	5½"	O.D.	14#	Lapweld Casing
150,000 ft.	2⅜"	O.D.	4½#	Upset Lapweld Tubing
50,000 ft.	2⅜"	O.D.	3.70#	Std. 2" Pipe

All used first class condition with threads and couplings in 20 ft. random lengths. Suitable for oil, water or gas wells, and line pipe. Attractively priced spot shipment Charleston, W. Va.

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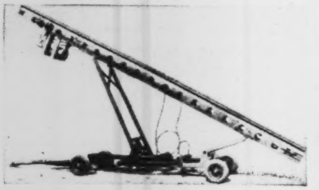
ENGINEERING NEWS-RECORD, 330 West 42nd St., N. Y., 18, N. Y.

NEW PRODUCTS

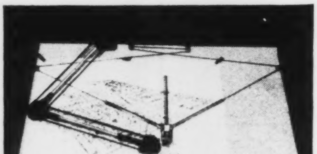
Grader Has Combination Leaning and Steerable Wheel

A new grader just announced by the Gledhill Road Machinery Co. features an entirely new principle in having a combination leaning and steerable wheel with the same rotating mechanism. This leaning wheel and steering feature is accomplished with one set of gears which simplifies maintenance and repair over the standard customary leaning wheel devices. The independent steering of both front and rear wheels enables the grader to be put in difficult positions on the job. Another feature is a combination automotive steering into which is built an offset hitch which permits the tractor or motive power to remain on good footing while the grader is steered laterally when needed. Its bank-sloping feature permits a wide and high reach of the blade whether equipped with an 8, 9 or 10 ft. moldboard. Standard equipment includes pneumatic tires, self-locking raising-and-lowering device, oil-tight gear cases, Timken tapered roller and thrust bearings throughout. It has a weight of 4,000 pounds.—The Gledhill Road Machinery Co., Galion, Ohio.



Conveyor Has Hydraulic Control

A hydraulically controlled belt and a hydraulically controlled Duo-Lift frame are available for the lightweight, portable Tote-All belt conveyors. Hydraulic control of the belt permits reversing action and a range of speeds from 0 to 400 fpm. The Duo-Lift frame is mounted on 4.00 x 8 pneumatic tires. The height of the low end of the conveyor can be adjusted from 20 to 48 in.; the high end, from 4 to 15 ft., depending upon the conveyor length. The hydraulic system is powered by either an electric motor or gasoline engine. Standard conveyors are available in lengths from 10 ft. up in multiples of 2 ft., and with belt widths of 8, 10 and 16 in. Special lengths and widths can be manufactured to order.—Lake Shore Engineering Co., Iron Mountain, Mich.



Perspective Drawing Device

A new draftsman's instrument makes it comparatively simple to create perspective drawings. The Perspect-O-Metric automatically guides the draftsman's pencil toward established vanishing point from any position on the drawing board. The Perspect-O-Metric attaches to any standard drafting machine, and is also available for attachment to parallel ruling straight edges. The device provides for two vanishing points which can be located at any position along the edges of the drawing board. Any movement of the device creates a corresponding angular motion of the swinging scale arms, and no matter where the unit is placed on the drawing board, the scale arms remain oriented to the chosen vanishing points. The scale arm may be permanently immobilized by tightening a knurled nut upon the depressed brake lever, permitting the Perspect-O-Metric to be used for isometric drawings. An ingenious system of graduation is designed to keep dimensions always in proportion, despite apparent reduction in size with distance.—Charles Bruning Co., Inc., 4754 Montrose Ave., Chicago 41.

Breaker Has Lifting Leg

A new-type heavy paving breaker features an air-powered lifting leg. This leg is designed to utilize air pressure to lift the tool and to pull stuck steels. The Model 52 Air-Jac has a weight of 92 lb., and the lift cylinder exerts a force of 100 lb. After penetrating pavement in a normal manner, line air pressure is applied to the lift cylinder through a control at the breaker handle. This relieves the operator from heavy lifting operations. For breaking through upper-story concrete floors, the air-lift leg is kept on solid concrete, thus eliminating the necessity for two-man operation or rope slings to prevent the tool from

(*Continued on page 94*)

Bitumuls HV

REG. U. S. PAT. OFF.

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Asphaltic Emulsion
for Surface Treatment

Another Product
Pioneered By
Bitumuls

QUIZ for Paving Engineers

How do YOU answer these questions?

1. **Can you hold wet, round gravel or large aggregate with your present binder?**
2. **Does your binder stay on the road, when "shooting" a steep grade or high crown?**
3. **Are your surface treatments rugged, non-skid, and vapor-permeable?**

1. Stone Held?

—or Ravels?

2. Binder stays put?

—or Runs Off?

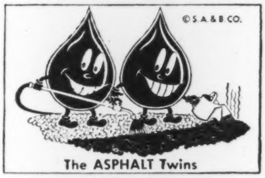
3. Rugged & Non-skid?

—or Fat & Slippery?

If your answer to all three questions is "Yes", you must be using *Bitumuls HV*—a "High Viscosity" asphaltic emulsion that is now used by a majority of State Highway engineers, because it really holds the aggregate, large or small, wet or dry.

Precise application is easy. No excess binder to cause fatness or slippery pavements—or to act as a vapor barrier retarding drainage by upward evaporation. You get a non-skid, vapor-permeable seal.

If You have not used "HV", try it on one job—you, too, will adopt it.



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Portable, efficient Hypressure Jenny will thoroughly clean your construction equipment in a matter of minutes, thereby permitting your mechanics to make on-the-job repairs unhindered by mud, muck and grease. Time-consuming shop lay-ups resulting in costly slow-downs are thus less frequent and your equipment is kept working—and earning.

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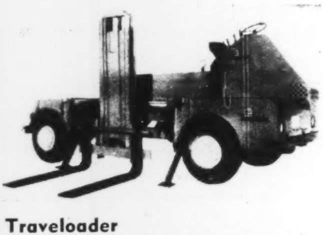
falling through. The breaker and Air-Jac points are spaced so that the tool can be "walked" along the breaking line. The Air-Jac is integral equipment and is not available as an attachment.—LeRoi Co., 1701 S. 68th., St., Milwaukee 14, Wis.

Paint Roller Is Self-Contained

The Flo-matic is designed to roll paint on flat surfaces including concrete, brick, and masonry. It holds its own supply of paint, which is delivered under pressure, and thus eliminates dipping operations. It is recommended for use with any oil-base paint. The Flo-matic is available in two models—a hand unit which holds a half pint of paint, and a large unit for use with pressure paint pot.—Rubberset Co., 56 Ferry St., Newark 5, N. J.

Crane-Excavator

Newly designed 1¼-cu.yd. excavator and material handling machine is available in three models, including shovel, dragline, clamshell, crane, or hoe, with all front-end attachments interchangeable. Improvements include new type crawler unit with each tread belt independently controlled and the addition of new hook rollers. Type 72 machine is equipped with air control. —Osgood Co., Marion, Ohio.



Traveloader

This is a combined loader, carrier and motor truck. It self loads from the side on to the carrying deck and then transports its load through narrow aisles or over the road. The Traveloader operates at speeds up to 30 mph. Three models, with 3,000, 10,000

(*Continued on page 98*)

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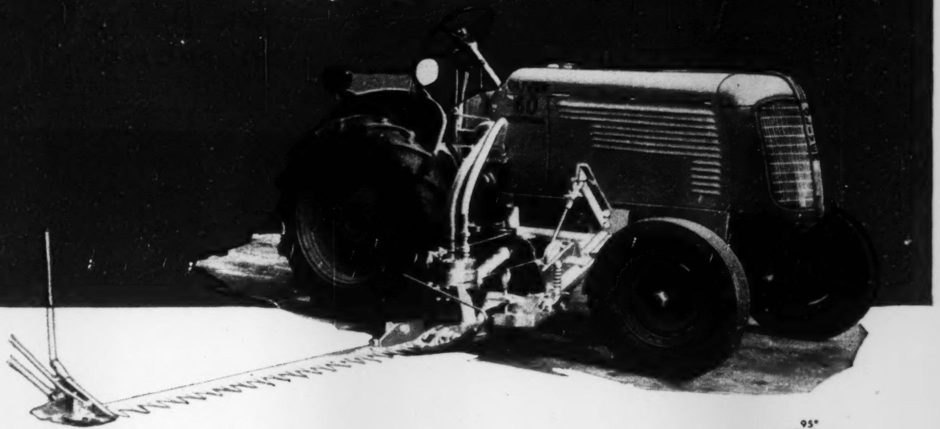

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The hydraulic motor drive of the knife makes possible smooth operation. Hydraulic safety mechanism practically eliminates damage to the knife that might be caused by refuse in the mowing path.

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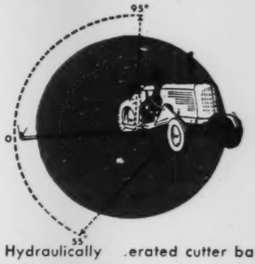
Oliver Industrial Wheel Tractors and Davco Hydro-Mowers are the ideal units for highways, railroad right-of-ways, parks, airports, and plant grounds. Your Oliver Industrial Distributor will be happy to give you all the facts on lower mowing costs or, write The Oliver Corporation, Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio.



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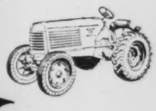

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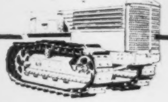

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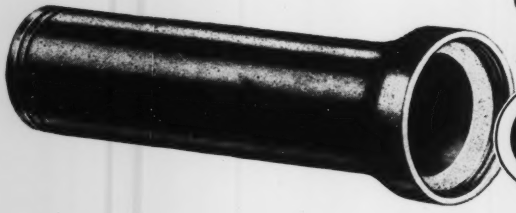

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CLAY PIPE NEVER WEARS OUT!

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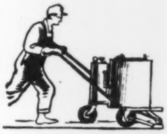

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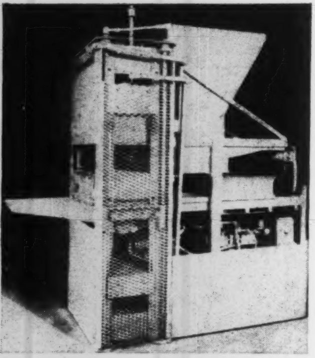
and 30,000 lb. lifting capacities, have 4-wheel drive, full hydraulic control and full power hydraulic loader operation. The traveloader can handle heavy, lengthy materials.—LULL MFG. CO., 3612 E. 44TH ST., MINNEAPOLIS 6, MINN.



Cement-Block Machine

A precision cement-block machine produces twelve 8x8x16 blocks in one minute. The Pneu-vibra-Matic machine features all-pneumatic block molding operations, no gears or shafts to wear and vary the molding, a heavy stabilizer on the leveling head and a new vibrator action designed to provide even density. Adjustable stops of 4, 6 and 8 in. keep block height to close tolerances. Designed for continuous operation, tolerances can be maintained to within 1/64 in. —CRAWFORD INDUSTRIES, 1100 E. SECOND ST., POMONA, CALIF.

Spot Welding Torch

With this inert-gas-shielded spot welding torch welds can be made from one side of the work without need of backing the weld location. Mild steel, low alloy and stainless steel, .030 to .064 in. thick, all can be welded, using currents from 155 to 250 amperes. Not only can two sheets of these metals be joined in one to two seconds per spot, but also a sheet of metal can be joined to underlying material of any thickness. This makes it possible to spot weld corrosion-resistant sheets to mild steel.—THE LINDE AIR PRODUCTS CO., UNIT OF UNION CARBIDE AND CARBON CORP., 30 E. 42ND ST., NEW YORK 17, N. Y.

Manufacturers' Publications

Concrete Forming System—A Uni-Form catalog describes a forming system which is automatically accurate, ready-to-use and which, it is said, makes possible material-savings of 50 percent and from one-third to one-half savings in labor. Forms are completely assembled. Rigid, indestructible steel frames and steel protector strips contain the plywood, insuring maximum reusage. Modular in design, the basic unit is 2 ft. wide.—UNIVERSAL FORM CLAMP CO., 1238 N. KOSTNER, CHICAGO 51, ILL.

Cast Iron Convectors—How in residential rooms, apartment structures, office buildings, hospitals and institutions the installation of cast iron convectors concealed by inconspicuous sheet steel enclosures produces both convected and radiant heat is explained and illustrated in a new 8-page bulletin, No. 540. Among the outstanding advantages claimed for these concealed heating units are fins cast integral with tubes, a low radiation loss through walls, the ability to be sized to fit exact space needs and cast iron's inherent resistance to water's corrosive agents, and cleanliness due to wide fin spacing.—THE NATIONAL RADIATOR CO., JOHNSTOWN, PA.

Special Handling Equipment—More than 110 different items and 150 photographs of special materials handling jobs have been assembled in a book of ten sections covering industrial power trucks, lift trucks, stackers, special platforms and wheel trucks.—LEWIS-SHEPARD PRODUCTS, INC., 184 WALNUT ST., WATERTOWN 72, MASS.

Roofing and Waterproofing—A very interesting photographically-illustrated booklet has been issued about the history and work of a hundred-year-old concern — Nicholson & Galloway — which specializes in masonry maintenance, chemical preservation of stone, Insul-Mastic protective coating, exterior painting, coppersmithing and sheet metal work.—NICHOLSON & GALLOWAY, 426-8 EAST 110TH ST., NEW YORK 29, N. Y.

Absorptive Form Lining—There is a new manual on Hydron absorptive form lining used in the construction of smooth, durable concrete surfaces. The manual discusses methods of installation, relative costs, applications, and specifications. It quotes statistics to prove the advantages of concrete forming with Hydron over wood forming. Hydron avoids concrete surface imperfections by absorption of air and water and by increasing surface density and abrasion resistance. The result is said to be less surface wear, lower maintenance costs.—U. S. RUBBER CO., ROCKEFELLER CENTER, NEW YORK 20, N .Y.

Air Hose—A booklet on air hose for welding, service stations, underground mining, pneumatic tools and general air drill service is available. It gives complete data on the applications, construction and specifications for air hose as well as instructions for good air hose engineering practice.—N. Y. BELTING AND PACKING CO., 1 MARKET ST. PASSAIC, N. J.

Mixer Drum Rotation—A description of the V-belt theory as applied to mixing drum rotation is included in a 4-page bulletin calling attention to important improvements in the design of the Kwik-Mix 3½-S non-tilt Dandee concrete mixer. The maker claims the elimination of gears or sprocket and chain will reduce maintenance costs and give smoother and more silent operation.—KWIK-MIX CO., KOEHRING SUBSIDIARY, PORT WASHINGTON, WIS.

High Speed Saws—Bulletin describes new "Hi-Speed" universal electric circular saws, whose use is not limited to wood. Blades are also available for cutting through nails, copper, brass, bronze, lead, tile, glass, brick, clay products, concrete, marble, flagstone, asbestos, cement products, and Celotex.—CHICAGO PNEUMATIC TOOL CO., 68 E. 44TH ST., NEW YORK 17, N. Y.

Heavy Jacking — A folder presents a graphic description of jacking operations performed during the laying of a water main project in Kansas City, Mo. Concrete lock joint compression pipe, 72 in. in diameter, was jacked on seven separate locations for from 30 to 160 ft. running under continuously used railroad lines and roadways. By the use of hydraulic jacking equipment there was no delay in traffic.—RODGERS HYDRAULIC, INC., MINNEAPOLIS 16, MINN.

Synchronous Motors—A 16-page bulletin tells of the operating advantages and construction features of bracket bearing synchronous motors in sizes from 30 to 1000 hp. The bulletin also points out that this manufacturer is equipped to build motors with special features for any service requirements.—ALLIS CHALMERS MFG. CO., 1018 S. 70TH ST., MILWAUKEE, WIS.

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READER COMMENT

Bigger and Better Roads

Sir: This is to urge that your "Also recorded" box on page 39, issue of April 28, 1949, should have extended to the top of the page.

By all means, the "reasonable load" sought by the Motor Truck Association and, the declaration that limitation of truck loads "will force curtailment of steel mill operations", deserve to be included in your special box along with "Smog Remedy", "Automatic Fertilizer" and "Figures Don't Lie".

Of course the appetite for bigger and better highways, at public expense, grows by what it feeds on; but since when have the free-riding trucks been paying one third of their cost?

Is it not more likely that the biggest single tax-payer—the railroads—have carried that burden, on top of the subsidized competition by truck?

D. W. Cole
Civil Engineer
Marietta, Georgia

Post-Stressing or Prestressing?

Sir: With reference to the article, "First Prestressed Bridge in the U. S.", by E. R. Schofield, ENR Dec. 30, 1948, please be informed that the term "prestressed wire units", as shown on the schematic diagram of girder reinforcing (p. 16) is grossly misleading. According to Mr. Schofield's description (p. 17), the wires will be stressed in pairs after the concrete has attained its 28-day strength. Evidently, this is a post-stressing method.

Prestressed reinforcing units were conceived by the writer and are described in the following publications:

Discussion of a paper by R. L. Bertin: "Saving Steel in Reinforced Concrete Design", Journal of the American Concrete Institute, Vol. 13, No. 5, April 1942, p. 288-8.

"Prestressed Concrete, Design Principles and Reinforcing Units", by Herman Schorer, Journal of the American Concrete Institute, Vol. 14, No. 6, June 1943.

"Concrete Prestressed with High Yield-Point Wire Reinforcement," by Herman Schorer, R/C No. 6, published by Structural Bureau, Portland Cement Association.

Mr. Schofield's schematic diagram of girder reinforcement shows prestressed wire units rising from the bottom flange as they approach the ends of the girders. This method was originated by the writer, and is fully described in U. S. Patent No. 2 303 394, also in the discussion and papers referred to above.

Herman Schorer
President, Borsari Tank Corp. of America
New York, N. Y.

Editor's Note—In using the term "post-stressing," Mr. Schorer is relating the time of stressing the steel to the time of placing the concrete. Under this terminology "prestressing" would apply only when the steel is stressed before the concrete is placed or before it has set. "Prestressing" in the sense that Mr. Schofield used it refers to the fact that the steel and concrete are prestressed before loads are placed on the structure. We prefer the later terminology as more precisely describing "prestressed concrete." When the steel is stressed is merely a detail of the process. The important end result is that the concrete is prestressed before loads come on it.

Mr. Schorer is one of the pioneers of prestressing in the U. S., but his claims of originality would probably be questioned by European engineers.

Building and Sinking Pumphouses

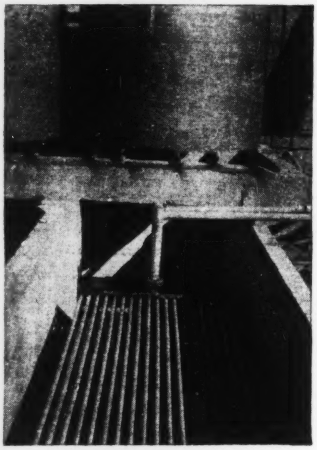
Sir: I have compared the river intake pumphouses described by S. B. Roberts in the March 3 issue, with similar structures built by the Tela Railroad Co. for irrigation of banana farms.

One of the Tela Railroad pumphouses was built in fine sandy silt which cannot be easily excavated below the water table. The foundation was built of reinforced concrete on the ground surface just above the water table, and sunk into place by excavating from the inside.

The reinforced-concrete cutting edge is 3 ft. high, 2 ft. wide at the top and tapers to an edge on the bottom.

Workers erect forms for the 12-ft. high, 12-in. thick reinforced concrete foundation of a 12x14 ft. pumphouse above the cutting edge. Standard form sections, 12x3 ft. are used.

Form sections can be erected quickly by bolting adjacent sections together, removed easily and reused several times. Inside and outside forms are bolted together in several places, with the bolt slipped through a short 12-in. piece of bamboo tube between forms. When the box is poured and the forms are removed, the tube is chipped out and the whole is patched.



Diesel-engine drives are cooled by pipe-grid radiators in the intake channel.

Excavation is accomplished by hand, with the spoil hoisted out in buckets, or with a small clam-shell, if available. The foundation slowly settles to grade. Later a concrete floor is poured, a covered intake flume is built from the pumphouse to the river, and a wooden pumphouse with corrugated iron roof is constructed.

A pumphouse of this type usually houses two 15,00-gpm. diesel-driven pumps. Many diesel engines are cooled by radiators made of pipe and lying in the intake channel as shown in the photo.

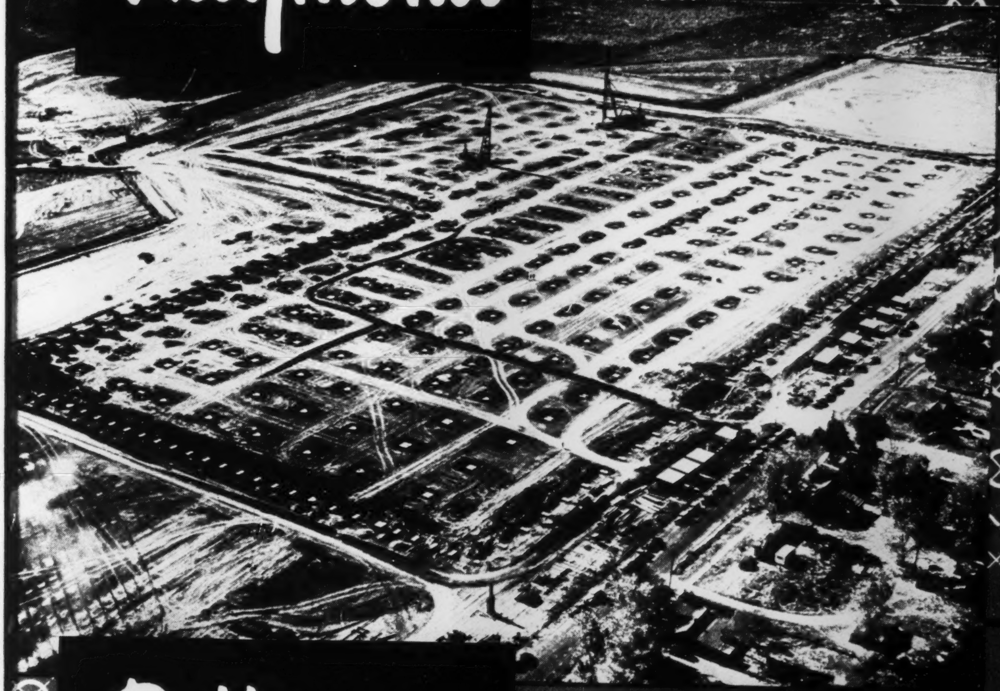
Mr. Roberts states that pumphouses are usually located on the inside of river bends because less debris accumulates than on the opposite shore. Most pumps of the Tela-Railroad Co., however, are located on the outside of river bends. The inside of the river bend is the shallow side, and the outside is the deep side. Pumphouses on the outside of the bends have more water available during the dry season, and they are less likely to have inlets choked with sand and silt deposits.

Robert L. Stein
Soils Engineer, Tela Railroad Co.
La Lima, Honduras

Error in Soil Sampler Size

In an article entitled "Soil Properties Computed by Nomograph," in the issue of Sept. 16, 1948, p. 108, the size of the soil sampler as given in the text was incorrect. The size given was "an inside diameter and length of 3 in."; it should have said "an inside diameter and length of 3 in. and 4 in., respectively." The volume of 0.0164 cu. ft. as given is correct.

Raymond



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Pictured above is Raymond's 1949 pile foundation for the new Caterpillar Tractor Company Building LL at Peoria, Ill.

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Roadside Report

FORD *Bonus Built* **TRUCKS** ★ **M. W. LOGAN**
Miami, Florida

Ford Model F-7 BIG JOB shown, has Gross Vehicle Weight rating of 19,000 lbs.; Gross Combination Weight rating of 35,000 lbs. as a tractor.

"My 145-h.p. FORD F-7 Makes Two Extra Loads Per Day!"

"HAULING wet sand and pit rock, I find that my 145-horsepower Ford F-7 Big Job can get in two extra loads a day over trucks of other makes," writes Murray W. Logan of Miami, Florida. "We're getting 50 to 55 miles an hour in high gear—and exceptional pulling power in low speeds. Gas mileage comes to 7 miles per gallon, and maintenance costs have been nominal. In my opinion, no 2½ ton truck of any other manufacturer compares with the Ford F-7!"

Dump-truck operators like Mr. Logan are going all-out in their praises for the new 145-h.p. Ford Big Jobs. For one thing . . . the new Ford 337 cu. in. engine outperforms anything in its class. For another . . . there's the luxurious comfort of the new Ford Million Dollar Cab—mighty important in work on rough roads or off-the-road construction. And Ford Big Jobs are Bonus Built—a feature of every one of over 150 Ford Truck models. Bonus Built is the superstrong construction that contributes to long truck life. Life insurance experts prove Ford Trucks last longer.

ONLY THE FORD BIG JOB

HAS ALL THESE FEATURES

- ★ New 145-h.p. Ford V-8 engine for top performance.
- ★ Ford exclusive concentric dual-throat carburetor for more power, more economy.
- ★ New heavy duty 5-speed transmissions—overdrive or direct-in-fifth—for operating flexibility.
- ★ Big Ford power-operated hydraulic brakes; front 16-inch by 2¼-inch; rear 15-inch by 5-inch double cylinder on F-7, 16-inch by 5-inch double cylinder on F-8. Air brakes also available for F-8.
- ★ Ford Super Quadrax single speed axles; two-speed axle available in Model F-8.
- ★ Large diameter (10-inch) wheel bolt circle with 8 studs to allow for extra-strong hub construction.
- ★ Million Dollar Cab with Ford Level Action suspension for greater driving comfort.
- ★ Nationwide service from over 6,400 Ford Dealers.
- ★ Ford Bonus Built construction for long truck life.

Gross Vehicle Weight ratings: F-8 up to 21,500 lbs., F-7 up to 19,000 lbs. Gross Combination ratings: F-8 up to 39,000 lbs., F-7 up to 35,000 lbs.

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